An Analysis of Certain Objective Measures for the Prediction of the Community's Reaction to a Principal's Behavior

By

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CHAPTER I

INTRODUCTION

The effectiveness of the school is greatly influenced by the leader chosen to administer the program of the school. The principal is in the focal position for determining the quality of the school. It is with him and through him that teachers and parents work to afford the children of the community the best education possible. His understanding of human relations and skill in working with people to release the potential of intelligence of the educational staff and of the parents in the community is of immeasurable value in maintaining an effective school program. It is of supreme importance, therefore, to analyze carefully the qualities and influences inherent in the principal in an effort to improve the quality of the school program.

Each community is faced with the problem of selecting a school administrator. How shall he be selected? What are the qualities, traits, and competencies that are important in choosing the leader? Who will make the most desirable principal? Many more questions could be asked but the list varies considerably among communities.

The answers to some of these questions are sought in this study. It is not possible to answer all of them completely. Some of the questions are without answers. It is the purpose of the author of this study to provide information and techniques that will be of value in predicting the effectiveness of the school principal. Careful consideration will be given the analysis of the relationship that exists among factors directly associated with the principal and a measure of the leadership effectiveness of the principal. The treatment is limited to the school communities of one county in one state of the United States. Broad inferences of a far-reaching nature are not intended nor implied in the discussion of the findings and in the synthesis of conclusions.

The study involves three major steps which are summarized as:

1. Collection of data on various aspects of school-community relations, personal information concerning the principal, and certain information on the nature of the community. It is assumed that certain measures of school-community interaction and interpersonal relations are criteria for judging the effectiveness of the school principal.

2. Analysis of the data for possible significant interrelationships of identifiable factors.

3. Synthesis of conclusions from the analysis of data contributing to the prediction of the community's reaction to the principal's behavior.

Background for the Study

As early as 1946, the Executive Committee of the American Association of School Administrators was considering ways educational administration could be better served. It was in that year that a planning committee was formed to study various means. Funds were made available by the W. K. Kellogg Foundation to hold five regional conferences in cooperation with the National Council of Chief State School

Officers, the Division of County and Rural Area Superintendents of the National Education Association, and the Department of Rural Education of the National Education Association. Subsequently a joint development committee was created to propose criteria for the establishment of program centers. Eight centers were established. The center at George Peabody College for Teachers was designated to serve the southeastern states. Later conferences with southern educators were instrumental in providing a program of working methods and organization for achieving the purposes of the project.[1]

Public announcement of the plans for the Cooperative Program in Educational Administration was made during the summer of 1950 stating:

> All sections will share information and will have these common objectives:
>
> 1. Analyze and define the role of the school administrator;
> 2. Ascertain how the standards of the relatively young profession can be raised; and,
> 3. Learn ways of improving college education curriculums, especially those for prospective principals and superintendents.[2]

By 1951, the Southern States Cooperative Program for Educational Administration was created.

The members of the Leadership Project at the University of Florida, a sub-project of the Southern States Cooperative Program for Educational Administration, have conducted a study of the relationship of leadership qualities of the school administrator to human relations, pupil achievement, and program development. In the early phase of the study, emphasis was placed upon obtaining an accurate description of the behavior of the principal.

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[1] Southern States Cooperative Program in Educational Administration, Better Teaching in School Administration, (Nashville: The Program Center, George Peabody College for Teachers, 1955), pp. 31 f.

[2] New York Times, August 7, 1950.

The original research proposal of the Florida Leadership Project included several major hypotheses concerning educational leadership. Among these proposals were:

Hypothesis 1: Leadership potential can be identified.

Hypothesis 2: The qualities of personality and the ways of working of the official leader influence to a major degree the relationship within a school.

Hypothesis 3: Training and experience can change ways of working of the official leader of a school. (Changes made would be expected to affect the relationship within a school).

Hypothesis 4: The amount and kind of change in the way of working of the official leader of a school is in part a function of his personality factors.

Hypothesis 5: The effectiveness of the official leader of a school is conditioned by the kind of community the school serves.[1]

As finally approved, the project was limited to an emphasis upon testing the second hypothesis, above. Some consideration was given to other hypotheses, however.

A Statement of the Problem

Two major hypotheses were formulated to guide this study. The two are based upon findings of the Florida Leadership Project. Neither, however, was treated in the studies preceding this study. The hypotheses may be stated:

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[1] "A Research Proposal for the Identification of Effective Educational Administrative Leadership," (Gainesville: College of Education, University of Florida, 1951), mimeographed.

1. There is a positive relationship between the measures of a principal's personality and behavior in serving as a leader of a school, and the measures of favorable reactions of the community.

2. The effectiveness of the principal's leadership is predictable, in part, from the measures of the principal's personality, democratic tendencies, and the nature of the school community.

It is assumed that one means of determining the effectiveness of the principal's leadership is to measure the attitudes toward the school as held by the teachers, the pupils, and the parents supplemented by the interpersonal relations among the pupils, parents, and teachers. These relationships are influenced by the way the principal acts. From the initiation of the project, researchers of the Florida Leadership Project have been attempting to define a pattern of factors that may account for this effectiveness. It is the intent in this dissertation to analyze the relationship of the measures of factors directly associated with the principal such as: personality, his pattern of behavior, the size of the school he administers, his antidemocratic tendencies, and any other factors attributed to or controllable by the principal with the criterion of leadership effectiveness. The effect of interfactor interactions will be included in the analysis.

The Relationship of the Problem to other Florida Leadership Studies

The reporting members of the series of related studies directed by the faculty members of the Florida Leadership Project have been generally concerned with one or two-factor descriptions and analyses of the principal's activities and influence. That is, each researcher has been analyzing the relationship of the way the principal acts with a measure of the reaction elicited from the pupils, teachers or parents. In this respect, each study has been narrowed to an intensive study of one phase of leadership research. Since the studies referred to have not been directed toward more than one facet of the leadership project, at a time, there was no opportunity for the researchers to consider other reports within the project when synthesizing conclusions.

The researchers in the preceding studies of the Florida Leadership Project have been able to rate principals of the school on continuums of democratic behavior patterns or by "best practices" behavior patterns. Other ratings have been made upon the basis of readiness for curriculum change, pupil interpersonal relations, and other reaction measures.

In contrast to the studies within the Florida Leadership Project, it is the purpose of the present writer to expand the study of school leadership to consider simultaneously the effect of the several measurable factors describing the principal and his environment upon the attitudes and interpersonal relations of the parents, pupils, and teachers. The findings of the previous researchers will serve as a basis for this broader analysis. Furthermore, the value judgment of the principal and the school will be on a continuum developed from several measures and ratings thereby presenting a more complete judgment of the effectiveness of the principal's leadership influence.

Limitations

The data will be limited to that obtained from the utilization of the following studies and instruments of measure:

I. Van Aken[1]
   - A. Principal Behavior Check List (abbreviated PBCL hereafter)
      1. F-K Democratic Scale
      2. Jury Correspondence Scale
      3. "F" Scale of Antidemocratic Tendencies
      4. Guilford-Martin Inventory of Factors GAMIN

II. Henderson[2]
   - A. Parent Questionnaire
   - B. Teacher Questionnaire

III. Goodwin[3]
   - A. Teacher Activity Questionnaire
   - B. Teacher Human Relations Questionnaire

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[1] Elbert W. Van Aken, "An Analysis of Methods of Operation of Principals to Determine Working Patterns" (Unpublished Doctoral dissertation, College of Education, University of Florida, 1954).

[2] Lee G. Henderson, "A Study of Certain School-Community Relationships with Special Reference to Working Patterns of School Principals" (Unpublished Doctoral dissertation, College of Education, University of Florida, 1954).

[3] George H. Goodwin, "A Study of Certain Teacher Activities and Human Relations with Special Reference to Working Patterns of School Principals" (Unpublished Doctoral dissertation, College of Education, University of Florida, 1955).

IV. Sugg[1]

A. Curriculum Improvement Measure

B. Program Development Interview Guide

V. Maynard[2]

A. Attitude Scales for Pupils

VI. Farrar[3]

A. Principal Behavior Check List, G D Form

VII. Newman[4]

A. Situational-Nonsituational Orientation to PBCL

This study is limited to the schools in Hillsborough County, Florida, that were included in the aforementioned studies. There are twenty-five schools common to all studies for which data are available. The data utilized are to be similarly limited to those secured at the time of the several studies and thereby recorded.

No attempt will be made to evaluate the efficiency of the principal in all of his behavior. Evaluation will be limited to the extent his behavior is evaluated by the instruments herein enumerated. No evaluation is attempted nor implied of his efficiency with respect to business administration practices such as records maintained, financial management, or personal industry. These latter factors are assumed to be completely foreign to the problem here considered.

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[1] Woodrow B. Sugg, "A Study of the Relationship Between Program Development and the Working Patterns of School Principals" (Unpublished Doctoral dissertation, College of Education, University of Florida, 1955).

[2] Honor E. Maynard, "A Study of Principal Human Relations within the School as Influenced by the Principal's Pattern of Behavior" (Unpublished Doctoral dissertation, College of Education, University of Florida, 1955).

[3] Doc Farrar, "Refinement of an Instrument to Determine Certain Characteristics of the Working Patterns of School Principals" (Unpublished Doctoral dissertation, College of Education, University of Florida, 1956).

[4] Floyd Newman, "A Further Analysis of the Methods of Operation of Public School Principals" (Doctoral dissertation currently in process, College of Education, University of Florida).

Definitions

In general, the definitions of terms peculiar to this study will be the same as those stated in the studies from which the data have been taken. More specifically, the following will apply:

Authoritarian Schools—are those schools whose principals were classified in Phase II of the Florida-Kellogg Leadership Project as most authoritarian and least democratic in leadership practices according to responses to the F-K De Scale and the F-K Au Scale.[1]

Behavior—any conduct or action exhibited by a person.[2]

Behavior Pattern—a profile of an individual's behavior or his way of working within the school orbit.[3]

Democratic Schools—are those schools of the study whose principals were classified in Phase II of the Florida-Kellogg Leadership Project as most democratic and least authoritarian in leadership practices according to the F-K De and the F-K Au Scales.[1]

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[1] Maynard, op. cit., p. 6.

[2] Van Aken, op. cit., p. 16.

[3] Ibid.

Interaction--any communication, verbal or nonverbal, that takes place between the school and the community.[2]

Parent Questionnaire--the University of Florida-Kellogg Leadership Study Questionnaire, used in Henderson's study to measure those school-community interactions relating the community to the school.[3]

Principal Behavior Check List--the instrument developed in Phase One of the Leadership study (University of Florida) to describe the behavior of a school principal in a series of situations.[4]

Program--the courses, subjects, activities, or experiences provided by a school for its youth. Program and curriculum are used interchangeably.[5]

Program Development--changes made in the school curriculum.[6]

Pupil Human Relations--the acceptance of fellow students and the expressed feelings and attitudes of pupils toward themselves as individuals, their fellow-students, their teachers, their principal, and their school as a whole.[7]

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[1] Maynard, *op. cit.*, p. 6.

[2] Henderson, *op. cit.*, p. 7.

[3] *Ibid.*

[4] Van Aken, *op. cit.*, p. 16.

[5] Sugg, *op. cit.*, p. 6.

[6] *Ibid.*

[7] Maynard, op. cit., p. 7.

Situational Behavior--behavior resulting from the recognition and analysis of the limits imposed on actions by the circumstances which make up a particular situation.[1]

Teacher Activity--ways in which a teacher functions in the performance of his or her professional duties; especially activities relating to work with professional organizations, supervisors, other teachers on the same staff, parents, pupils, and for professional improvement; and as measured by the questionnaire check list designed by Mathews.[2]

Teacher Human Relations--the way in which teachers see themselves and how they act and feel toward others; especially how they feel about the teaching profession, other teachers, the principal, children, the school, and the community; and as measured by the techniques devised by Walker.[3]

Teacher Questionnaire--the University of Florida-Kellogg Leadership Study Questionnaire, used in Henderson's study to measure those school-community interactions relating the school to the community.[4]

Overview

In the next chapter a review of the pertinent literature will be presented. The studies were selected for the contributions that could be made to the present study. In the third chapter is a description of the method of selecting the data to be analyzed and the process by which it was treated. Subsequent chapters include the analysis of the data, a summary of the conclusions, and recommendations for further study.

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[1] Newman, op. cit.

[2] Goodwin, op. cit., p. 7.

[3] Ibid.

[4] Henderson, op. cit., p. 7.

CHAPTER II

REVIEW OF THE LITERATURE

Preparation was made for the study of the current problem by reviewing the literature that reported studies in leadership, human relations, and the analysis of the principal's working pattern. Most of the important leadership studies were analyzed and reported by Myers covering a span of time of one half century. The extensiveness of this review is reflected in the bibliography which contains over 350 entries.

The review of the literature presented in this chapter is limited to a report of those studies which are closely related to the current problem. Many other reports provided a frame of reference for this author, however.

Myers set out ". . . to test the hypothesis that a synthesis of leadership research will indicate patterns for leadership education."[1] In the statement of his basic problem he posed four questions:

1. What are the research findings concerning the nature of leadership?
2. What are the approaches and procedures of leadership education in education, industry, union labor, and the armed forces?

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[1] Robert B. Myers, "The Development and Implications of a Conception of Leadership Education" (Unpublished Doctoral dissertation, College of Education, University of Florida, 1954), p. 3.

3. What implications may the research findings concerning the nature of leadership have for the leadership education of school personnel?

4. What implications may the approaches and procedures of leadership education in industry, union labor, and the armed forces have for the leadership education of school personnel?[1]

Myers presented a conception of leadership in six generalizations:

1. Leadership is a value in society.
2. Leadership exists in every group.
3. Leadership is a group role.
4. Leadership is an educational function.
5. Leadership is authority rendered by a group.
6. Leadership is a service function.[2]

In his concluding statement he sets forth several implications or principles for leadership education for school personnel:

1. Persons should have learning experiences in group operation.
2. Nondirective instruction is fundamental to leadership education.
3. Institutional goals should be secondary to personal and group goals.
4. Institutional programs should be flexible.
5. Provisions should be made for participation in institutional and professional organizations.
6. Group process and role playing procedures should be utilized.
7. Teachers and administrators should have common learning experiences.
8. School authorities should provide opportunities for leadership.

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[1] Ibid.

[2] Ibid., p. 158.

9. Leadership education should emphasize service to others.[1]

This writer deemed it unnecessary to repeat the review of research reported by Myers. Since the study of Myers was completed, research has been conducted at the University of Florida. The studies have been planned and executed by members of the Florida Leadership Project. These studies are the base from which the current research is developed. The review of the reports of the Florida Leadership Project, therefore, is an integral part of the current study.

The purposes of the leadership study at the University of Florida as defined by Alpren were: (1) to develop ways of studying the operating patterns of school principals; (2) to categorize the operating patterns of school principals; (3) to study interrelationships of personality patterns of school principals and their operating patterns; and (4) to determine the influence of various personality patterns and ways of working of school principals upon various aspects of school programs.[2]

A research team was chosen and plans were made for a three to five year project to fulfill the purposes of the study. The team early realized a need for methods of ascertaining the ways a principal worked. In addition, instruments were needed for measuring other aspects of the school program related to the principal's way of working. So it was in the first phase of the Leadership Project that the way the principal works or behaves was accepted as a criterion for studying educational administration. Subsequent studies in the latter phases of the project contributed to the fund of knowledge supporting this fundamental thesis.

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[1] _Ibid_., pp. 221 ff.

[2] Morton Alpren, "The Development and Validation on an Instrument to Ascertain a School Principal's Pattern of Behavior" (Unpublished Doctoral dissertation, College of Education, University of Florida, 1954), pp. 1 f.

There were seven areas outlined for Phase One of the project. A purpose in each area was to develop an instrument to measure appropriate aspects of the school program. Alpren chose area one or "leadership practices" stating the problem in the form of three questions:

1. Can we identify the behaviors of a school principal?
2. Can an instrument be developed that elicits from the school principal responses which describe his actual behavior?
3. Can an instrument be developed that will enable future investigators to determine principal's behaviors in a relatively brief period of time?[1]

In designing the research problem, Alpren, with the assistance of the research staff, decided to seek behaviors by exploring selected key situations and thence record the behaviors exhibited in these key situations. The initial situations were developed from the experiences of a group of judges plus additional analysis and expansion provided by a class of graduate students and selected school principals.

The responses obtained from the selected principals were validated by observations, interviews, and questionnaires. Researchers virtually moved into the schools for extended periods of time in an effort to determine how the principal behaved in key situations.

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[1] *Ibid.*, p. 4.

Further validation was obtained by submitting the instrument to ninety principals elsewhere in Florida and in the nation.

Alpren concluded that school principals using the instrument could describe their behaviors in key situations but that selected teachers were better capable of describing the behavior of the school principal through the use of the instrument. Thus, in general Alpren answered the questions initially posed in the study. These conclusions were based upon a small sample. As a result, a further application of the instrument was made in Phase Two of the Kellogg Leadership Project.

The Principal Behavior Check List, which was accepted as the criterion instrument of measure for the project, was not the only instrument developed during the first phase of the study. Other aspects of the school program were similarly scrutinized with the purpose of developing instruments to measure selected variables.

A second area of study within the first phase was in teacher human relations. The initial study of the project in teacher human relations was by Walker. The prime purpose was to develop and validate an instrument or battery of instruments indicating the attitude and feelings of teachers in their relations with the principal, the pupils, and other teachers in the school. The limitation of the small number of schools was maintained. The result of the study is manifested in the Teacher Human Relations Questionnaire.[1]

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[1] Ralph H. Walker, "A Technique for Assessing Teacher Human Relations" (Unpublished Doctoral dissertation, College of Education, University of Florida, 1954).

In like manner, Thompson, Battle, Williams, and Mathews developed instruments of measure in the areas of program development,[1] student attitudes,[2] teacher and parent interaction with the school and each other,[3] and teachers' professional activities,[4] respectively.

Like Alpren, Carter conducted an exploratory study in the first phase of the Leadership Project limiting the study to a small number of schools in an effort to develop a technique for study rather than to report significant findings from which inferences could be drawn. More specifically she was interested in testing the hypothesis that relationships existed among self concept, role concept, values, background experiences, and the ways of working of a school principal.

The type of intensive study used in this exploratory stage as stated by the author is as follows:

> The research team, composed of eight graduate students and their coordinator, worked in the school from the middle of August, 1952, until the middle of June, 1953. Their work involved interview, observations, questionnaires, sociometric scales, and tests of many sorts. Material was rechecked, notes were taken, and notes and interviews were recorded on tape. The emphasis was on the objective gathering of information. The collected material was available to all members of the group for study.

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[1] Yewell Thompson, "Techniques for Studying Program Development Within a School" (Unpublished Doctoral dissertation, College of Education, University of Florida, 1954).

[2] Jean Allen Battle, "Techniques and Instruments for Measuring Certain Student Human Relations" (Unpublished Doctoral dissertation, College of Education, University of Florida, 1954).

[3] Paul P. Williams, "Techniques for Studying Certain School-Community Relationships" (Unpublished Doctoral dissertation, College of Education, University of Florida, 1953).

[4] Walter B. Mathews, "Techniques for Studying Certain Professional Activities of Teachers" (Unpublished Doctoral dissertation, College of Education, University of Florida, 1954).

> The four principals were observed and interviewed many times during the period of research. Teachers, patrons, pupils, friends, and acquaintances of the principal were interviewed about the principal. Writings of, and about, the principal were read. They ranged from unpublished books, published poems and articles to newspaper clippings, scrapbooks, and letters. Observations were made in and out of school. Analysis of opinions, observations, and interviews of other members of the research team were analyzed and compared.[1]

Generally speaking, the tests and measures administered the subject principals were assessments of personality variables and the check list as developed by Alpren. Published tests were analyzed in a manner suggested by the publishers. The open-ended questionnaire was evaluated for "authoritarianism" by a jury of graduate students.

Carter concluded the basic hypothesis was supported by evidence recorded in the study, but suggested further study be made with a larger sample. It is reiterated here that a prime purpose of this study, a part of the first phase of the Leadership Project, was to devise a technique for systematically studying educational leadership in the public schools. All of the above cited studies have no doubt contributed to that end.

It was in the second phase of the Leadership Project that the criterion measure, the Principal Behavior Check List, was to receive a new significance which was sustained throughout the balance of the planned project. Van Aken administered the Check List to selected principals in Hillsborough County, Florida, with the purpose of categorizing the principals into smaller groups according to patterns of behavior. After failing in an attempt to separate mechanically the groups on the basis of replies to the questions, he enlisted the aid of two different juries to classify the replies. One jury worked together for consensus in classifying each reply as authoritarian, laissez faire, or democratic. Any item upon which consensus was not reached was eliminated as being indeterminate. A second jury composed of college professors who had had administrative experience selected the two most effective practices under each item. The frequency of principal responses under each category was determined.

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[1] Patricia H. Carter, "An Exploratory Study of Relationships Existing Among a Public School Principal's Background, Self Concept, Role Concept, Values, and Patterns of Work" (Unpublished Doctoral dissertation, College of Education, University of Florida, 1954), pp. 15 f.

Three basic instruments were administered to the Hillsborough County principals; the aforementioned Principal Behavior Check List, the Guilford-Martin Inventory of Factors GAMIN, and the Adorno "F" Scale of Antidemocratic Tendencies. The check list was also completed by five selected teachers in each school.

All attempts to reveal common patterns of behavior ended in failure. There was apparently no relationship between the check list and the Factors GAMIN or the F Scale. There was, however, a significant negative relationship between the scores of the principals on the F-K De Scale and the F-K Au Scale. The correlation between the scores on the two scales was -.90. Van Aken concluded that "either or both give criteria for isolating groups, like each other and different from others, in their behavior."[1] A correlation of -.97 was reported between the scores in the Jury Correspondence Scale (best practices) and the F-K Au Scale (authoritarian).

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[1] Van Aken, op. cit., p. 100.

Four studies in the third phase (devoted to relating leadership practices with facets of the school program) are reported as being pertinent to the present study. These studies are quite similar in that each reports on the relationship between a particular facet of the school program or community and the criterion principal behavior pattern.

Van Aken selected the "most democratic" and "least authoritarian" principals as one group and the "most authoritarian" and "least democratic" as the second group. In most cases the same people who were most democratic were least authoritarian and vice versa. The two groups were subjects for further study in the following dissertations.

Henderson selected the aspect of school-community relations and reported the results of the application of Williams' Teacher Questionnaire and the Parent Questionnaire which reflected the degree of interaction of the school and the community.[1] In another study, Maynard used the Battle Attitude Scales for Pupils and the Ohio Acceptance Scale extending the work of Battle in the first phase of the project.[2] A third facet was studied by Sugg who investigated the relationship of the working pattern of the principal and program development reporting on the faculty's readiness for program development and the nature of changes made in the curriculum.[3] Goodwin utilized Walker's

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[1] Henderson, op. cit.

[2] Maynard, op. cit.

[3] Sugg, op. cit.

Teacher Human Relations Questionnaire and Mathews' Teacher Activities Questionnaire in a study to relate the principal's pattern of behavior to teacher human relations and the teacher's activities.[1]

Henderson hypothesized that an outcome, school-community relationships, is related to or dependent upon the behavior pattern of the school principal. In order to test this thesis he collected data on "certain significant school-community relationships in the selected schools."[2] It was assumed that these interactions were important:

I. The community to the school--

  A. How the community provides opportunity for the school to learn about the community;

  B. How the community feels about the community;

  C. How the community supports the school;

  D. How the community uses the school;

  E. How the community provides opportunity for the school to participate in community life.

II. The school to the community--

  A. How the school provides opportunity for the community to learn about the school;

  B. How the school feels about the community;

  C. How the school supports the community;

  D. How the school uses the community;

  E. How the school provides opportunity for the community to participate in the development of the educational program.[3]

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[1] Goodwin, op. cit.

[2] Henderson, op. cit., p. 5.

[3] Henderson, op. cit., p. 5.

Henderson reported mean scores of weighted responses for schools categorized as "democratic" and likewise for schools called "authoritarian." He compared these differences between the means by applying the Chi Square test of significance. From this he concluded that "increasing frequency of democratic behavior on the part of the principal tends to result in more favorable opinions about the school and, to a lesser extent, more interaction with the school, particularly among parents in the average and above-average income groups and among parents with high school or higher education."[1]

Maynard stated a series of null hypotheses that elaborated upon the major hypothesis: There is no difference between the pupil attitudes and feelings in schools whose principals are democratic and the pupil attitudes and feelings in schools whose principals are authoritarian in ways of working.[2]

For her sample, she chose pupils in the terminal grades of the elementary school and the junior high school and eleventh grade pupils on the high school level. Battle's Student Attitude Scale, as developed in Phase One of the Leadership Project, and the Ohio Social Acceptance Scale were utilized as the basic instruments of measure for the study. Scores represent weighted responses such that a score was available for each pupil participating in the study. Each pupil had a score on the Social Acceptance Scale for acceptance by the same sex and acceptance by the opposite sex. On the Student Attitude Scale, scores were reported for each pupil on attitude toward self, toward peers, toward teachers, toward the principal, and toward the school as a whole.

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[1] Ibid., p. 184.

[2] Maynard, op. cit., p. 4.

Statistical treatment included the calculation of means, standard deviations, and standard error of the means from which differences of means could be compared. Rank-order correlations were also determined for pupil attitude and occupational level, income level, size of the school, and the principal's scores on the check list scales.

Maynard concluded that the null hypothesis, which constituted the major hypothesis of the study, could be rejected as untenable in the light of the evidence presented. There was a significant difference in the means reported between the pupils in the "democratic schools" and the pupils in the "authoritarian schools." Correlation data further supported the conclusion by indicating "that attitudes expressing favorableness correspond to democratic ways of working." Continuing, "the order of influence on pupil attitudes appears to be occupational level of the parents of pupils expressing the attitude, income level of the school-community, principal's democratic way of working, size of school, and principal authoritarian way of working."[1]

Sugg selected another facet of the major hypothesis stated for the Leadership Project. His concern was the relationship of the working patterns of school principals and program development in schools. The problem was stated in the form of three pertinent questions:

1. Is there a difference in the readiness of teachers for program change in schools with the two types of principals?

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[1] _Ibid._, p. 85.

2. Is there a difference in the amount and kind of program change in schools with the two types of principals?

3. Is there a difference in the methods used to produce program change in schools with the two types of principals?[1]

Two instruments were used in the collection of data. One was an instrument designed to note readiness for curriculum change and was administered to all teachers in the selected schools who had been teachers in that school for at least three years. The second was an instrument used in conjunction with personal interviews to record instances of program change. Interviews were held with five teachers and the principal in an effort to reach consensus regarding the changes made.

To facilitate the treatment of data, Sugg related the hypothesis in null form hypothesizing no difference in the readiness of teachers for curriculum change in the school of democratic principals and in the schools with authoritarian principals. Analysis of variance followed by "t" tests constituted the statistical procedure. He "found that the mean readiness score of teachers in democratic elementary schools was significantly higher than the mean readiness score of teachers in authoritarian elementary schools."[2] There was apparently no difference in the secondary schools.

Regarding the Program Development Interview Guide, there was no significant difference found in the amount and kind of program changes made. The democratic schools, however, added more and dropped fewer courses and activities. When courses were classified by subject field there was a significant difference noted. The democratic schools made a significantly greater number of changes in daily schedules, guidance services and procedures, and changes in other services than was evident for the authoritarian schools.[1]

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[1] Sugg, op. cit., p. 5.

[2] Ibid., p. 56.

Goodwin investigated that portion of the major hypothesis of the Leadership Project concerning the relationship among working patterns of the school principal, teacher human relations, and teacher activities. The problem was considered in three ways:

1. to determine whether there is a difference in the frequency of certain types of teacher activities in schools with relatively democratic principals as compared with the frequency of certain types of teacher activities in schools with relatively autocratic principals;
2. to determine whether there is a difference in the nature of teacher human relations in schools with relatively democratic principals as compared with the nature of teacher human relations in schools with relatively autocratic principals; and
3. to determine whether there is a relationship between teacher activities and teacher human relations.[2]

The scoring of the Teacher Activity Questionnaire was accomplished by weighting responses regarding the frequency of participation of the teachers with children, with other teachers, with principals and supervisors, with parents, with professional organizations, and for professional improvement. A total score was computed for each teacher. These scores were transformed to the more facile "T" scores with a mean of thirty and a standard deviation of ten. Similar treatment was afforded the responses to the teacher human relations questionnaire.

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[1] *Ibid.*, p. 122.

[2] Goodwin, *op. cit.*, p. 6.

The working hypotheses were stated in the null form to permit the comparision of means. Analysis of variance was used as the major statistical approach. This permitted an analysis allowing for the estimation of one variable when the general effects of other variables are considered. The "t" ratio was applied to these estimates to test the probability that a significant difference existed.

Goodwin concluded there was no significant relationship between the frequency of teacher activities and the principal's operating pattern. All of the differences noted were in the direction of a positive relationship with the democratic pattern of behavior. There was a significant difference between the frequency of activities and the level of school. The elementary school teachers are more active (as defined by Goodwin's study) than are the secondary school teachers. This latter finding was not a part of the original major hypothesis.

Likewise, there was a positive relationship between the teacher human relations and the principal's pattern of behavior but the relationship was not statistically significant. There was a significant relationship between teacher human relations and the level of the school. The elementary school teachers exhibited the more favorable human relations.

The positive relationship between teacher activities and human relations was not sufficient to permit a reliable prediction of one measure from the other.

Goodwin conjectured that the remoteness of relationship between the secondary school teacher and the principal brought about by the inclusion of deans and department heads in the school organization could possibly account for the differences on influence of the principal. The number of pupils each teacher contacts daily could also influence the degree of interaction of the pupil and teacher and thereby reduce the apparent interest the teacher holds for the school and its activities. Elementary school teachers have closer associations with fewer pupils each day.

It has been stated previously that the Florida Leadership Project was one of several incorporated in the Cooperative Program in Educational Administration. Another project was carried out at the Program Center at The Ohio State University with the purpose of analyzing the functions of the school administrator. Jenkins and Blackman reported the findings of a facet of the general problem that is parallel, in many respects, to the project of the University of Florida.

The Ohio State University study was executed in an industrial city in Ohio in cooperation with the personnel of the school system of that city. The school personnel were engaged in curriculum improvement studies at the individual school centers. The study reported here, however, is only incidentally associated with the plans for curriculum improvement. The project study was concerned with the role and influence of the principal with the planning and study of the several school faculties.

The researchers of the project accepted this statement as a guide: "The basic criterion for effectiveness in school administration is the quality of learning which results from the children's experiences in the school."[1] This criterion was too broad and was further delineated to facilitate a research design. A basic assumption permitted the transition from the basic criterion to that of the "working criterion." The researchers assumed: "the qualities of the administrator affect his behavior, his behavior brings about reactions on the part of his teachers, and these reactions affect the learning of the children."[2] The working criterion became the reactions of the teachers to the administrator's behavior.

The similarity of the criterion used in the Ohio study to that stated for the current research is noteworthy.

Jenkins and Blackman stated four hypotheses which they proposed to test, namely:

> 1. The qualities of the administrator affect his planning and problem-solving behavior.
> 2. The qualities of the administrator affect the procedures and processes he uses with the staff and the atmosphere he creates for the staff.
> 3. The administrator's planning and problem-solving behavior affects the procedures and processes he uses with the staff.
> 4. The procedures and processes the administrator uses and the atmosphere he creates affect the teachers' behavior and their reactions.[3]

In conducting the study, information was obtained through the use of questionnaires, written tests, and interviews. Three areas were investigated: (1) qualities of the administrator, (2) behavior of the administrator, and (3) the effects of the administrator's qualities and behavior upon the teachers.

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[1] David H. Jenkins and Charles A. Blackman, Antecedents and Effects of Administrator Behavior, (Columbus, Ohio: College of Education, The Ohio State University, 1956), p. 7.

[2] Ibid., p. 8.

[3] Ibid., p. 13.

The researchers found that "as a group, younger and less experienced principals are significantly more effective in working with teachers, in terms of the data we have, than are the older, more experienced principals, taken as a group."[1] They concluded, however, this situation may have resulted from a recent change in policy with respect to the selection and training of school principals. Similar results were obtained with respect to the recency of graduate education work. The relation of age to recency of training is so close, however, that it is not possible to distinguish between the two factors in reporting the findings.

In the conclusions, the first hypothesis (The qualities of the administrator affect his planning and problem-solving ability.) the results were "meager." The authors found "some degree of relationship . . . between the emotional make-up of the principal and his ability to solve problems." It was believed the problem is well worth further exploration.[2]

There was "ample support" for the hypothesis that the qualities of the administrator affect the processes and procedures he uses with the staff and the atmosphere he creates with the staff.

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[1] Ibid., p. 33.

[2] Ibid., p. 77.

Inconclusive data was available for properly testing the other hypotheses stated.

The authors state that the statistical comparisons of the data did not show significant differences and in this respect were rather disappointing but the major finding of the study was much broader in scope. This they summed up as: "There is . . . a continuing thread of relationship extending from the personal needs of the administrator, as shown by his personality, through the way he plans and carries out administrative practices and through the communication pattern he develops in the school, to the general reactions of his staff."[1]

Other research has been reported that associated the school with the community through the analysis of identifiable factors. Pierce studied the controllable community characteristics related to the quality of education. He used the methods of multiple correlations to find answers to two basic questions, namely:

> 1. To what extent may the variability in adaptability among school systems be ascribed to variation among the communities in which the school systems are located?
>
> 2. What are some elements, or influences, which may be employed to exercise control over the direction of change in factors related to adaptability, in order that the community setting of the school system may be improved?[2]

Pierce accepted the definition of "adaptability" stated by Mort as the "capacity for adaptation" and "variability" as a measure of that capacity. In addition, he oriented his study to Mort's "factors influencing adaptability."[1] A further classification of the factors influencing adaptability was made by Pierce into the following categories:

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[1] Ibid.

[2] Truman M. Pierce, Controllable Community Characteristics Related to the Quality of Education, (New York: Bureau of Publications, Teachers College, Columbia University, 1947), p. 4.

1. Community good will toward education.
2. Conditioners of the expression of good will and understanding of education.
3. Community understanding of what the schools can do.[2]

These three groups of independent variables were correlated with three equally weighted measures selected as the criterion or dependent variable in a multiple correlation analysis. The measures so used are defined thus:

> 1. The Time Scale. This score reflects the dates of introduction of 22 partially diffuse adaptations selected as a representative sampling of educational inventions and practices which are commonly accepted by educational authorities as desirable.
> 2. The High School. This measure consists of scores on items of school practice judged by a group of trained experts to reflect the extent to which four aspects of modern school practice are present in the high school, as determined by a group of trained field workers who visited the various schools.
> 3. The Elementary School. The measure of elementary school adaptability was similarly developed and . . . applied by trained field workers . . . .[3]

The four aspects considered as reflecting modern practice included ways in which teaching was accomplished to create lifelike situations, extent of meaningfulness and usefulness, recognition of special aptitudes, and the development of behavior patterns in the area of citizenship and similar desirable traits beyond textbook knowledge.

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[1] Paul Mort and Francis Cornell, Adaptability of Public School Systems, (New York: Teachers College, Columbia University, 1939), p. ix.

[2] Pierce, op. cit., p. 10.

[3] Ibid., p. 48.

The findings revealed that the factors examined accounted for 64 per cent of the criterion established (multiple correlation R equal to .80). The elements designated as making up the factor of "community good will toward education" and the elements making up the factor designated as "conditioners of the expression of good will and understanding of education" each accounted for 48 per cent of the variation in adaptability (criterion factors). This may be stated as showing that 48 per cent of the variation in adaptability is related to these measures. A combination of these factors, or groups of elements, showed that 61 per cent of the variations in adaptability is ascribed to variations in these two factors. The remaining factor, "community understanding of what the schools can do," increased the accounting to the aforementioned 64 per cent.

From this analysis Pierce concluded that there is strong evidence to support the statement that what the public knows of what a school is like and what it should do is important in determining the quality of education in the schools of a community. He recommends that the people in the community be afforded the opportunity to acquire knowledge necessary for understanding the role of an adequate school program.

Ayer elaborated on the data reported by Pierce thus once more extending some of the techniques developed by Mort and Cornell and further substantiating conclusions stated by Pierce and Mort and Cornell. Ayer applied the technique of centroid factor analysis which eliminated the need for selecting a criterion arbitrarily as is necessary in the multiple correlation technique. Ayer, like Pierce and Mort and Cornell, accepted "adaptability" and "school quality" as synonyms but differed in the acceptance of Pierce's "logical selection" of criterion. The primary objective of the study was to determine which of the measures (elements) are related to the same general factors and to test Pierce's hypothesis regarding the selection of factors.

Utilizing centroid factor analysis technique devised by Thurstone, Ayer extracted five factors. The factors are listed with the per cent of contribution to total variance of the criterion:

1. wealth--19 percent
2. public understanding of intellectual level--17 per cent
3. urbanness or centralization--10 per cent
4. tax structure--9 per cent
5. suburbanness or rurality--8 per cent.

The first variable, "wealth" is almost completely accounted for but the other four are not as conclusively determined and it is suggested by the researcher that further studies be made in that direction.[1]

Summary

In this chapter was presented a review of the literature that is related to the problem of the present study. The analysis of the research studies reported by Myers provided a frame of reference for a study in educational leadership.

The studies reported by the members of the Florida-Kellogg Leadership Project provided source material from which new hypotheses could be formulated to guide the current study. Measures of human behavior, attitudes, and interpersonal relations and other data were extracted from these leadership studies. The Ohio State University project reported by Jenkins and Blackman presented a study which in many ways paralleled the Florida Leadership Project but selected other phases of the problem of describing the behavior of the school administrator.

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[1] Frederick L. Ayer, "An Analysis of Certain Community Characteristics Related to the Quality of Education," (Unpublished Doctoral dissertation, Columbia University, 1952), p. 22.

The study by Pierce and that of Ayer served the current research as a pattern to guide the statistical analysis. In each of these studies an analysis was made of the relationship of the criterion "school quality" and the several descriptive community factors.

Judging from the limited number of studies discovered by the current research, there is apparently a paucity of research published that is concerned with the behavior pattern of the principal and its relationship with school quality or with leadership effectiveness.

CHAPTER III

TREATMENT OF THE DATA

All of the data selected for treatment in this study were recorded by researchers of the Florida-Kellogg Leadership Project of the University of Florida. Most of the data were treated in the several doctoral dissertations completed by these same researchers. Other information was recorded and deposited in the files of the Leadership Project. No new observations were made for this study in that current observations would not be commensurate with the original data. The data collected for the original studies were made at a time that permitted observations with a common basis, that is, with no major changes in administration, policies, or community composition. Re-observation at this later date could be influenced by changes in time, personnel, and conditions that would bias the data for the purposes of this study.

A search was made for any observable measure of a factor that could contribute to the analysis of predictors of community reactions. The independent variables were selected on the basis of association with the principal. This includes measures of factors that conceivably may be attributed to the principal as a person or those over which the principal may exercise control. First in the consideration are those variables that are a measure of the principal's behavior. The results of the Principal Behavior Check List are typical. These results are recorded on the basis of four scales: the score on Farrar's G D Form, Van Aken's Jury Correspondence Scale, the Democratic Scale, and Newman's Situational Orientation to the PBCL. These four scores, for each principal, are four different approaches to the scoring on the same instrument and, therefore, can not be included in the same statistical analysis.

The next group of instruments includes measures of personality. The F Scale of Authoritarian Tendencies developed by Adorno and others is utilized along with the Guilford-Martin Factors GAMIN. The Factor "M" was excluded from the analysis in that the application reflected a dichotomous distribution on the basis of male and female principals thereby biasing the results.

Other attributes or elements recorded are such factors as the length of time the principal has been employed in the county, the number of years in the school as the principal, the length of time the principal has been an educator, and the number of years since attaining the current teaching rank (as certified by Florida Law).

Two other factors are not as clearly associated with the principal; the number of teachers in the school supervised by the principal and the level of income of the community. These are justified on the basis of the freedom of choice exercised by the principal in accepting the administrative position. These factors assist in describing the nature of the community.

The schools and principals selected were all schools on which complete information was available, i.e., complete data on all measuring devices used. This narrowed the field to twenty-five schools of Hillsborough County, Florida. All of the schools were treated in the earlier studies referred to above.

The raw data were converted to more facile numbers by coding. Zero-order correlations were determined for all possible combinations of thirty sets of scores taken two at a time. These results are shown in a correlation matrix in Table 1.

Much of the statistical analysis of the present study was contingent upon the development of a satisfactory criterion score for the multiple correlation determinations. The criterion selected for this study was the principal's leadership effectiveness as reflected in the measures of the interpersonal relations fostered in the school or community and the reactions affected by the principal's ways of working. It was not the intent of the earlier researchers of the Leadership Project to make value judgments with respect to the instruments used. Emphasis was placed upon describing reactions or attitudes related to a specific pattern of behavior exhibited by the principal. Those instruments that indicated significant relationships with a given pattern of behavior were selected for the development of the composite score necessary for this study.

Several measures of the many facets of community reactions were reported. To select any one measure of reaction or attitude of the pupils, teachers, or parents toward the school would create a biased criterion which would not be affected by those facets eliminated from consideration. The problem, therefore, was one of combining all available measures of interpersonal relations and attitudes into one composite score that would be sensitive to the several attributes deemed significant. The composite score would necessarily reflect the communality of the instruments measuring the reactions and interpersonal relations

TABLE 1

MATRIX OF INTERCORRELATIONS

	Teacher Questionnaire #1	Teacher Questionnaire #2	Teacher Activities	Teacher Human Relations	Curriculum Improvement Guide	Program Development Guide	Parent Attitude	Parent Interaction	Pupil Attitude Toward Self	Pupil Attitude Toward Peers
Teacher Questionnaire #1	...	.534	.390	.485	-.249	-.064	.415	.425	.495	.515
Teacher Questionnaire #2	.534	...	.294	.375	.105	-.345	.507	.534	.107	.195
Teacher Activities . . .	.390	.294	...	.815	-.229	-.513	.480	.505	-.101	.228
Teacher Human Relations	.485	.375	.815	...	-.086	-.468	.400	.516	.155	.447
Curriculum Improvement Measure	-.249	.105	-.229	-.086	...	.103	.028	.214	-.043	-.157
Program Development Guide	-.064	-.345	-.513	-.468	.103	...	-.594	-.587	.225	.015
Parent Attitude	.415	.507	.480	.400	.028	-.594	...	.727	-.018	.277
Parent Interaction . . .	.425	.534	.505	.516	.214	-.587	.727	...	.106	.330
Pupil Attitude Toward Self	.495	.107	-.101	.155	-.043	.225	-.018	.106	...	.563
Pupil Attitude Toward Peers	.515	.195	.228	.447	-.157	.015	.277	.330	.563	...

TABLE 1--Continued

	Pupil Attitude Toward Teachers	Pupil Attitude Toward Principal	Pupil Attitude Toward School	Teacher-Principal Correspondence	G D Form, PBCL	Jury Correspondence	Democratic Scale	Situational Orientation	F Scale	Factor G
Teacher Questionnaire #1	.259	.600	.395	-.062	.484	.542	.447	.513	.289	.019
Teacher Questionnaire #2	.240	.343	.353	-.070	.610	.611	.595	.504	-.139	-.058
Teacher Activities . . .	.080	.175	.127	.271	.347	.304	.576	.091	.122	-.267
Teacher Human Relations	.189	.457	.246	.398	.494	.432	.337	.340	.139	-.125
Curriculum Improvement Measure	.271	-.092	-.019	.202	.178	.242	.299	.288	-.210	-.192
Program Development Guide	.094	-.084	.074	-.023	-.250	-.048	.094	.041	-.097	-.182
Parent Attitude	-.175	.201	.102	-.092	.470	.284	.303	.122	.187	.026
Parent Interaction . . .	.147	.365	.215	.180	.559	.462	.379	.401	.221	-.128
Pupil Attitude Toward Self	.170	.444	.036	-.193	.186	.213	.316	.369	.365	.044
Pupil Attitude Toward Peers	.284	.448	.483	.264	.431	.524	.402	.505	.169	-.044

TABLE 1--Continued

	Factor A	Factor I	Factor N	Years in the County	Years in the School	Years in Teaching	Years in Rank	Number of Teachers	Level of Income	Composite Criterion
Teacher Questionnaire #1	-.168	-.026	.210	.081	.350	-.143	.423	-.023	.537	...
Teacher Questionnaire #2	.056	.290	.302	.008	.359	-.106	.239	-.191	.014	...
Teacher Activities . . .	-.395	.122	.144	.100	.005	-.459	.255	-.530	.199	...
Teacher Human Relations	-.315	-.072	.030	-.192	.037	.476	.171	-.491	.188	...
Curriculum Improvement Measure	-.033	-.156	-.081	-.042	.180	.109	.022	.037	.018	...
Program Development Guide	-.060	-.093	-.115	.041	-.123	.440	-.243	.580	.120	...
Parent Attitude	-.233	.007	.129	.040	.296	-.356	.428	-.017	.078	...
Parent Interaction . . .	-.241	-.146	-.077	-.133	.292	-.266	.342	-.313	.192	...
Pupil Attitude Toward Self	.102	-.165	-.055	-.103	.163	.214	.144	.405	.630	...
Pupil Attitude Toward Peers	-.270	-.273	-.318	-.246	.132	.032	.184	.159	.331	...

TABLE 1--Continued

	Pupil Attitude Toward Teachers	Pupil Attitude Toward Principal	Pupil Attitude Toward School	Teacher-Principal Correspondence	G D Form, PBCL	Jury Correspondence	Democratic Scale	Situational Orientation	F Scale	Factor G
Pupil Attitude Toward Teachers . . .	...	.369	-.403	.181	.246	.433	.401	.504	-.160	-.186
Pupil Attitude Toward Principal . . .	.369	...	.415	-.027	.552	.464	.511	.433	.341	-.059
Pupil Attitude Toward School	-.403	.415	...	.150	.347	.435	.366	.428	.012	.166
Teacher-Principal Correspondence	.181	-.027	.150	...	.197	.448	.163	.305	-.128	-.327
G D Form, PBCL	.246	.552	.347	.197	...	.835	.959	.700	.071	.040
Jury Correspondence . .	.433	.464	.435	.448	.853	...	.877	.841	-.263	-.008
Democratic Scale	.401	.511	.366	.163	.959	.877	...	.775	-.251	.082
Situational Orientation to PBCL	.504	.433	.428	.305	.700	.841	.775	...	-.130	-.012
F Scale	-.160	.341	.012	-.128	.071	-.263	-.251	-.130	...	.078
Factor G	-.186	-.059	.166	-.327	.040	-.008	.082	-.012	.078	...

TABLE 1--Continued

	Factor A	Factor I	Factor N	Years in the County	Years in the School	Years in Teaching	Years in Rank	Number of Teachers	Level of Income	Composite Criterion
Pupil Attitude Toward Teachers . . .	-.078	.101	.068	.056	.167	.134	.335	.095	.104	...
Pupil Attitude Toward Principal . . .	-.168	-.195	.124	-.182	.180	.024	-.015	.141	.103	...
Pupil Attitude Toward School	-.088	-.093	-.271	-.177	.180	.212	.040	.010	-.104	...
Teacher-Principal Correspondence	-.197	-.170	-.272	-.274	-.164	-.005	.046	-.201	.147	...
G D Form, PBCL	.103	.002	.097	-.272	.355	-.234	.155	-.159	.192	.715
Jury Correspondence . .	-.146	-.034	-.037	-.385	.266	-.188	.171	-.213	.260	.701
Democratic Scale	-.023	.018	.007	-.367	.331	.190	.068	.027	.228	.640
Situational Orientation.	-.027	-.242	-.136	-.316	.431	-.125	.304	-.130	.369	.612
F Scale	-.045	-.122	.001	.097	-.019	.111	.085	.180	.258	.222
Factor G	.609	.200	-.217	-.452	-.127	.095	-.217	.575	-.006	-.145

TABLE 1--Continued

	Factor A	Factor I	Factor N	Years in the County	Years in the School	Years in Teaching	Years in Rank	Number of Teachers	Level of Income	Composite Criterion
Factor A	...	.584	.109	-.303	-.159	.241	-.212	.109	-.157	-.277
Factor I	.584	...	.513	-.043	-.324	.074	-.143	-.059	-.292	-.079
Factor N	.109	.513	...	.004	-.109	-.383	.019	-.170	-.228	.070
Years in the County . .	-.303	-.043	.004	...	.404	.256	.328	.229	.178	-.110
Years in the School . .	-.159	-.324	-.109	.404	...	-.014	.584	.026	.239	.298
Years in Teaching . . .	.241	.074	-.383	.256	-.014	...	-.150	.871	.069	-.245
Years in Rank	-.212	-.143	.019	.328	.584	-.150	...	-.056	.417	.392
Number of Teachers . . .	.109	-.059	-.170	.229	.026	.871	-.056	...	.153	-.205
Level of Income	-.157	-.292	-.228	.178	.239	.069	.417	.153	...	.357
Composite Criterion . .	-.277	-.079	.070	-.110	.298	-.245	.392	-.205	.357	...

stated above and the several factors making up the score would be weighted in accordance with the relative contribution the particular measure makes to the composite.

Fourteen measures were selected for contributions to the composite score. Of these measures, seven were of teacher reactions or interpersonal relations and five were measures of pupil interpersonal relations. The remaining measures were of the parents' attitudes toward and interaction with the school. Each instrument of measure was validated by the original researcher.

Each instrument selected for consideration in developing the Composite Criterion was found to be significantly related to the principal's pattern of behavior by the earlier researcher. Any instrument used in the studies cited that failed to meet the criterion of significance was eliminated from consideration in the current study.

In the selection of measures for teachers to be used for the criterion score, the teacher questionnaire used by Henderson was divided and used as two instruments. These will be referred to as "Teacher No. 1" and "Teacher No. 2." Product moment correlation calculations revealed a correlation of .534 between the two portions and dissimilar relations of the two with other measures in the battery of tests. However, no changes were necessary in the results of the questionnaires concerning teachers' activities and teachers' human relations as reported by Goodwin. Similarly, the results of the readiness for curriculum change and the number of curriculum changes (Planned Interview Development Guide) as reported by Sugg were included without basic change.

One new treatment of data was included. In the original validation of the Principal Behavior Check List, five teachers and the principal completed the check list to describe best the way the principal acted in the problem situations. No complete analysis was made at that time. For the purposes of this study, a scoring was included that favored the responses that teachers and principal together considered to be the most accurate description of how the principal behaved. The score is not a measure of democratic or authoritarian tendencies. It is suggested, but not so validated that the score may be a measure of how well the principal and teachers correspond with each other; possibly a measure of principal-teacher interaction. The responses on the teacher-principal scale were weighted three points for a first choice and two points for a second choice. The score for each response was then determined by the summation of the principal's and the teachers' scores. Unless the response was selected by over half of the respondents as being typical of the principal's actions the item was eliminated as being indeterminate. The total score was compiled by summing only those items on which the principal considered the reply to be his first or second most frequent behavior and on which the composite teacher response reflected the most frequent behavior observed.

The measures of the parents' attitudes and the parents' interaction with the school were selected from the study by Henderson. Since Henderson was not concerned with value judgments the results of the measures did not necessarily reflect reactions that could be classified as desirable. It was the need of the researcher in the current study to make some value judgments so the instruments were rescored to consider replies judged to be desirable attitudes and interactions. Questions 7 to 28 made up the attitudes portion of the questionnaire and questions 36 to 59 made up the interaction portion of the questionnaire. Items that were inappropriate for measure were eliminated in accordance with the recommendations made by Henderson.[1]

The pupil reactions included in the composite were the results of Maynard's application of the Battle Pupil Attitude Scales. Included in these were the pupils' attitude toward self, attitude toward fellow pupil, attitude toward teachers, attitude toward the principal, and attitude toward the school as a whole.

All data for the above instruments are recorded and shown in Appendix A.

As implied above, the selection of the measures was based upon the criterion of significant discrimination between principals with different patterns of behavior. This criterion, therefore, was established by earlier researchers who reported results of the use of the measures. The problem of weighting had to be solved for this study.

The methods of factor analysis could offer aid in defining the elements present in the group of scores cited as reaction measures. This method assumes that a variety of phenomena in a given area are somehow related and may be regrouped into a smaller number of functional unities.[2] The results of a factor analysis problem can indicate relative contributions of each element considered and prescribe a weighting for the standard score of the measure to be considered. However, factor analysis can be a laborious chore and has not been developed for this particular function. It would be absurd to use factorial methods in circumstances in which fundamental concepts are already formulated and tested as is true in this study. The method does not produce a unique solution.

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[1] Henderson, op. cit., pp. 30 f.

[2] Louis L. Thurstone, Multiple-Factor Analysis, (Chicago: The University of Chicago Press, 1947), p. 56.

The basic problem was one of finding a method of combining scores for each individual in a manner that permitted the composite to exhibit the greatest possible discrimination between all possible pairs of individual scores in the experimental group. Statistically, this implied the standard deviation of the composite scores must be of maximum value.

The method selected for making up the composite score was developed by Horst. In deriving the method he wrote an algebraic expression that represented a series of scores with a maximum standard deviation.[1] This method produces a composite score that is sensitive to the appropriate contributions and weighting of each score entering the composite.

The method of maximum dispersion was first reported at least twenty years ago but Horst maintains: "In the absence of a good subjective basis for weighting the criterion variables I still think the method of maximum dispersion is best if you want a single composite measure."[2]

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[1] Paul Horst, "Obtaining A Composite Measure from A Number of Different Measures of the Same Attribute," Psychometrika, I (1936), pp. 53-60.

[2] Letter from Paul Horst, Executive Director, Division of Counseling and Testing Services, University of Washington, May 16, 1956.

The score is found by substituting proper values in the following formula:

$$S = \frac{\Sigma r_{i1}}{\sigma_1} X_1 + \frac{\Sigma r_{i2}}{\sigma_2} X_2 + \cdots + \frac{\Sigma r_{in}}{\sigma_n} X_n$$

The derivation is presented by Horst in the reference cited and is not repeated in the current study.

In applying the formula, an intercorrelation matrix of the fourteen measures of community reaction was formed. The diagonal entries for the matrix are unity. The first term of the formula is the sum of the first column of correlation coefficients divided by the standard deviation of the scores of the first measure. This represents the relative contribution of the first instrument of measure to the composite score. This ratio must be multiplied by the raw score of the first measure. The second term is the sum of the second column in the correlation matrix divided by the standard deviation of the second series of scores. This ratio is likewise multiplied by each score of the second measure to produce the converted scores for the second measure. The other terms are similarly determined. The composite score is then found by summing the converted scores for each instrument of the measure for each of the twenty-five schools. The new score, "S," for each school replaces the fourteen scores formerly recorded for each of the twenty-five schools making up the study group.

The Sigma r (sum of the correlations) represents the relative importance attached each measure included in the composite score. A negative value implies the instrument measures something unlike that which the other instruments measure.

The original scores for each school were converted to weighted scores by multiplying each factor by the appropriate quotient as described above. Thus, each score of the first portion of the teacher questionnaire was multiplied by 47.41; the second by 70.40; the teacher activities by .6820; and so on as noted in Table 3. This process reduced each score to terms of comparable magnitude and to a score commensurate with its importance in contributing to the criterion score. The summation of all fourteen converted scores by school represents the composite score for that school.

A correlation matrix was next prepared with the composite score (referred to as the Composite Criterion hereafter) replacing the fourteen scores formerly recorded in its stead. As was true of the other scores, the Composite Criterion scores were coded for calculation convenience prior to determining the correlations.

The composite was used as the dependent variable in a multiple correlation determination. The independent variables were selected arbitrarily from the available variables in an effort to find that set of independent variables producing a high multiple correlation R with the dependent variable. Care was exercised to avoid measures that were co-dependent or statistical artifacts. For example, only one variable was selected that would be dependent upon the age of the individual so in the first determination the number of years the principal was employed in the school was selected and the factors of "Years in the County" and "Years in Teaching" were avoided.

The maximum number of independent variables considered at one

TABLE 2

COMPUTATION OF COMPOSITE CRITERION

	Teacher Questionnaire #1	Teacher Questionnaire #2	Teacher Activities	Teacher Human Relations	Curriculum Readiness	Program Development
Teacher Questionnaire #1	1.000	.534	.390	.485	-.249	-.064
Teacher Questionnaire #2	.534	1.000	.294	.375	.105	-.345
Teacher Activities	.390	.294	1.000	.815	-.229	-.513
Teacher Human Relations	.485	.375	.815	1.000	-.086	-.468
Curriculum Readiness	-.249	.105	-.229	-.086	1.000	.103
Program Development	-.064	-.345	-.513	-.468	.103	1.000
Teacher-Principal Correspondence, PBCL	.415	.507	.480	.400	.028	-.594
Parent Attitude	.425	.534	.505	.516	.214	-.587
Parent Interaction	.495	.107	-.101	.155	-.043	.225
Pupil Attitude Toward Self	.515	.195	.228	.447	-.157	.015
Pupil Attitude Toward Peers	.259	.240	.080	.189	.271	.094
Pupil Attitude Toward Teachers	.600	.343	.175	.457	-.092	-.084
Pupil Attitude Toward Principal	.395	.353	.127	.246	-.019	.074
Pupil Attitude Toward School	-.062	-.070	.271	.398	.202	-.023
Sigma r	5.138	4.172	3.522	4.929	1.048	-1.167
Standard Deviation	.1084	.0593	5.164	5.680	2.038	17.67
S	47.41	70.40	.6820	.8678	.5144	-.0661

TABLE 2--Continued

Teacher-Principal Corres., PBCL	Parent Attitude	Parent Interaction	Pupil Attitude Toward Self	Pupil Attitude Toward Peers	Pupil Attitude Toward Teachers	Pupil Attitude Toward Principal	Pupil Attitude Toward School
.415	.425	.495	.515	.259	.600	.395	-.062
.507	.534	.107	.195	.240	.343	.353	-.070
.480	.505	-.101	.228	.080	.175	.127	.271
.400	.516	.155	.447	.189	.457	.246	.398
.028	.214	-.043	-.157	.271	-.092	-.019	.202
-.594	-.587	.225	.015	.094	-.084	.074	-.023
1.000	.727	-.018	.277	-.175	.201	.102	-.092
.727	1.000	.106	.330	.147	.365	.215	.180
-.018	.106	1.000	.563	.170	.444	.036	-.193
.277	.330	.563	1.000	.284	.448	.483	.263
-.175	.147	.170	.284	1.000	.369	-.403	.181
.201	.365	.444	.448	.369	1.000	.415	-.027
.102	.215	.036	.483	-.403	.415	1.000	.150
-.092	.180	-.193	.264	.181	-.207	.150	1.000
3.258	4.677	2.946	4.892	2.706	4.614	3.174	2.179
9.446	3.075	1.567	.8795	2.819	1.704	.4084	6.223
3.449	1.521	1.880	5.563	.9600	2.708	.7772	.3502

TABLE 3

MEASURES OF REACTIONS AND INTERPERSONAL RELATIONS: COMPOSITE CRITERION LOADINGS

School Number	Teacher Question #1	Teacher Question #2	Teacher Activities	Teacher Human Relations	Curriculum Readiness	Program Development	T-P Corres. PBCL
01	1.896	38.157	18.414	26.467	15.688	-1.189	23.811
02	13.843	39.706	23.665	34.451	14.042	-1.189	19.960
04	9.244	32.032	15.413	20.480	15.122	-3.435	21.710
08	13.037	39.494	20.937	29.071	15.071	-.462	17.508
09	8.486	32.947	22.574	25.947	14.659	-1.189	22.761
11	11.757	37.030	24.143	33.670	16.202	-2.048	21.010
14	11.093	41.325	22.097	26.120	14.042	-2.840	20.310
16	10.666	40.973	21.824	27.728	15.122	-.198	15.758
17	1.043	24.781	20.937	23.951	14.556	-2.642	22.411
18	18.156	39.213	25.166	29.591	15.431	-2.048	22.761
21	11.852	33.440	25.507	28.376	12.499	-1.189	21.360
22	5.167	36.678	15.072	21.695	15.122	-3.831	18.209
24	16.260	36.819	19.164	25.513	14.196	-2.048	20.310
29	18.204	36.819	25.166	36.881	11.573	-1.189	18.909
30	7.348	30.835	25.439	32.108	14.556	-2.048	20.660
32	12.089	35.622	18.278	22.476	14.299	-3.039	17.508
33	17.303	40.410	26.257	31.761	13.888	-2.444	23.111
40	12.752	35.693	16.573	22.649	14.453	-3.567	20.660
41	14.317	32.877	15.413	21.608	14.916	-3.699	20.310
43	20.527	42.733	24.825	32.629	14.865	-1.189	21.710
45	12.610	39.424	22.711	27.509	14.556	-.462	24.512
49	6.305	34.074	19.232	17.095	13.013	-2.840	18.909
53	13.131	39.917	21.756	25.513	13.116	-1.189	19.960
57	18.299	33.510	19.914	27.422	13.579	-3.303	18.559
60	7.822	32.806	18.619	23.083	13.785	-.198	18.909

TABLE 3--Continued

School Number	Parent Attitude	Parent Interaction	Pupil Attitude Self	Pupil Attitude Peers	Pupil Attitude Teachers	Pupil Attitude Principal	Pupil Attitude School
01	18.486	35.282	57.338	120.706	44.448	68.514	9.093
02	19.763	37.715	63.166	129.606	43.290	71.493	9.249
04	17.935	31.784	59.594	131.275	45.504	71.222	10.026
08	23.970	37.259	57.150	124.600	44.448	69.056	9.249
09	21.142	27.222	56.586	125.156	44.160	62.285	9.249
11	21.625	35.890	56.586	126.825	50.784	73.659	9.948
14	21.418	34.522	57.338	122.375	44.736	69.597	9.171
16	23.177	34.674	60.158	119.038	44.160	68.868	9.327
17	16.555	28.591	60.534	125.156	43.968	63.369	9.016
18	22.763	40.605	62.602	127.381	47.616	64.723	9.093
21	20.625	33.153	57.150	125.156	41.472	64.181	9.404
22	19.383	28.134	61.850	129.606	43.872	58.765	9.560
24	21.280	39.540	58.842	125.156	46.080	70.139	9.715
29	20.659	34.978	63.730	135.169	47.328	77.721	9.793
30	17.348	31.936	56.398	119.594	46.368	63.910	9.404
32	19.211	26.614	61.474	121.819	44.064	69.326	9.016
33	23.625	36.347	58.278	129.050	41.280	69.597	9.871
40	11.313	26.462	61.098	125.713	50.016	66.889	9.482
41	15.141	27.070	63.542	120.150	44.256	72.305	9.482
43	24.384	41.517	64.857	134.056	49.152	73.118	10.026
45	23.212	40.605	61.662	132.944	48.864	73.388	9.560
49	18.866	33.609	56.962	119.594	46.560	65.535	9.482
53	21.797	32.241	55.646	123.488	45.792	65.264	9.560
57	23.867	33.305	64.670	132.388	44.736	74.472	9.171
60	24.557	37.259	58.278	122.375	39.840	63.639	9.171

time was limited to ten. The routine of the solution is quite laborious beyond this number, and, more important, with a small sample a large number of factors reduces the significance of the solution. These factors were selected on the basis of zero-order correlations with the criterion and on the uniqueness of meaning the factor represented. This meant a score based upon the Principal Behavior Check List, the various personality factors, and any other score that correlated with the criterion and was not directly related to other factors was included. (The highest multiple R, in general, is obtained in a situation that includes variables exhibiting high correlations with the criterion variable and low intercorrelations.) The first determination included:

Jury Correspondence Scale of the PBCL

F Scale

Factors G, A, I, and N (individually)

Number of years in the school

Number of years since obtaining present rank

Number of teachers in the school

Income level of the school community.

Subsequent determinations were made with a lesser number of independent variables and in conjunction with the other scores for the PBCL and factors similar to the pattern established for the first determination. Variables found to add little to the solution were eliminated and other factors were substituted as the apparent need arose. Detailed analyses are included in subsequent chapters of this report.

CHAPTER IV

FACTORS IDENTIFIED AS CONTRIBUTING TO THE PREDICTION OF THE REACTIONS TO THE PATTERN OF BEHAVIOR OF THE PRINCIPAL

The plan of the study, a description of the procedures followed in collecting the data, a description of the statistical methods used, and the formulation of the Composite Criterion were presented in Chapter III. In this chapter the results of the statistical procedures will be presented. Thus, the effects of the several identifiable factors will be observed in relationship with the previously developed Composite Criterion. Statistical descriptions will be offered as evidence in support of conclusions to be stated in a later chapter. The results of the calculations will be a mathematical analysis only; an analytical discussion of the results will be reserved for the general synthesis of conclusions presented in a later chapter of the study.

Analysis of Zero-order Correlations

Correlations were calculated for all possible combinations of measures taken two at a time and were recorded in a correlation matrix. A correlation of .500 was arbitrarily chosen as a significant level of relationship worthy of discussion. This level is well above the .01 level of significance but the intercorrelations of the various factors attaining the .01 level are so numerous that a limit had to be established in the interests of economy and clarity.

The Principal Behavior Check List was scored in four different ways for this study. The intercorrelations of the four--the Democratic Scale, the Jury Correspondence Scale, the G D Form, and the Situational Orientation Scale--are listed in Table 4. To this matrix of intercorrelations has been added the correlations of the four scales, individually, with the Composite Criterion and the elements with which at least one of the four scales correlates to the extent of the aforementioned .500 level.

There is a .959 correlation between the G D Form and the Democratic Scale of the Principal Behavior Check List indicating the two are quite similar to each other. The G D Form is a shortened form of the Check List created by the elimination of items that failed to discriminate between principals with high and low scores on the measure. There are differences, however, in the correlations of the Composite Criterion with the Democratic Scale and the G D Form. The refinement of the Democratic Scale in the G D Form provided an increase in the correlation of the Check List with the Composite Criterion from .640 to .715.

Lower correlations are in evidence between the Situational Orientation and each of the other scales of the PBCL. This statement is generally true also for the correlations with some of the elements making up the Composite Criterion. Most evident is the lack of correlation with the measure of Teacher Activities. It may be safely stated that the Situational Orientation is not associated with whatever it is that is measured by the Teacher Activities Questionnaire. Teacher activities are more closely associated with democratic practices than with any other measure of the principal's behavior available.

The measures making up the Composite Criterion that were most closely associated with the scales of the Check List other than those mentioned above, varied only slightly in the relationships with each of the four scales of the PBCL.

Goodwin noted a positive relationship between teachers' activities and teacher human relations but could not make a conclusive statement regarding the tendency.[1] In the sample used for this study it is apparent that a real relationship exists between teachers' activities and teacher human relations. This is evidenced by the obtained correlation of .815 between the two measures shown in Table 4.

The relationship of parents' attitudes and interactions with the attitudes of the teachers are positive and moderately associated. Program development, however, is negatively correlated with favorable parental attitude and interaction. Parents react less favorably and interact with the school less frequently in those schools making the greatest number of changes in the curriculum. Or it may be stated that the schools making fewer changes in the program are looked upon with greater favor than those schools making more frequent changes.

As would be expected, where pupils have favorable attitudes toward each other, teachers likewise look upon the school, the community, and their profession with more favor.

The factor of community density and school size as reflected in the measure of Number of Teachers is significantly related to Teachers' Activities, program changes, and Factor G of the principal's personality. The relationship between Number of Teachers and Teachers' Activities is

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[1] Goodwin, op. cit., p. 74.

TABLE 4

INTERCORRELATIONS OF PRINCIPAL BEHAVIOR CHECK LIST SCALES AND CORRELATIONS WITH CERTAIN ELEMENTS OF THE COMPOSITE CRITERION

	Democratic Scale	Jury Correspondence	G D Form	Situational Orientation
Teacher #1	.447	.542	.484	.513
Teacher #2	.595	.611	.610	.504
Teacher Activities	.576	.304	.347	.091
Parent Interaction	.379	.462	.559	.401
Pupil Toward Peers	.402	.524	.431	.505
Pupil Toward Teacher	.401	.433	.246	.504
Pupil Toward Principal . . .	.511	.464	.552	.433
Composite Criterion	.640	.701	.715	.612
Democratic Scale		.877	.959	.775
Jury Correspondence	.877		.853	.841
G D Form	.959	.853		.700
Situational Orientation . .	.775	.841	.700	

negative indicating the larger the school the less teachers participate in professional activities. The larger schools apparently promote a greater number of program changes which, in turn, is negatively related to parents' favorable attitude. However, there is no relationship between the size of the school and parental attitude as may be expected from the interrelationships of Number of Teachers, Parents' Attitudes, and Program Development Guide (program changes). There is also a positive relationship existing between Number of Teachers and Factor G. There is evidently a tendency for principals exhibiting overt activity (Factor G) to administer the larger schools.

The level of income of the school community is related to the attitude of the teacher toward the school, the community, and the profession and is also related to the attitude of the pupil toward himself.

The Composite Criterion

An analysis of the Composite Criterion scores (Table 5) indicates that either women are more acceptable as principals or elementary schools provoke a more favorable attitude in teachers, pupils, and other community residents. When the schools are listed from highest to lowest on composite scores, only one school with a male principal falls above the median school and only two schools with female principals are listed below the median. It must be added, however, that only one of the schools above the median is not an elementary school (grades 1-6). The three schools that are exclusively upper secondary schools are listed among the lower seven schools.

At the time of the observations, eight schools were administered

TABLE 5

COMPOSITE CRITERION SCORES IN DESCENDING ORDER WITH LEVEL OF SCHOOL AND SEX AND CERTIFICATE RANK OF THE PRINCIPAL

Composite Criterion Score	School Level	Sex of Principal	Rank Held	School Number
113	Elementary	Female	B*	43
96	Elementary	Female	A	29
91	Elementary	Female	A	45
83	Elementary	Female	B	18
79	Elementary	Male	A	02
78	Elementary	Female	A	33
77	Elementary	Female	A	11
71	Jr. High	Female	B	57
61	Elementary	Female	B	24
56	Elementary	Female	B	08
51	Elementary	Female	B	14
51	Elementary	Female	A	16
46	Elementary	Male	B	53
43	Elementary	Male	A	21
38	Elem.-Jr.-Sr. High	Male	A	04
37	Elementary	Female	A	01
34	Elem.-Jr. High	Male	A	30
32	Elementary	Female	B	09
30	Sr. High	Male	A	40
29	Jr. High	Male	A	32
29	Elementary	Male	A	60
28	Sr. High	Male	A	41
19	Sr. High	Male	A	22
16	Elem-Jr.-Sr. High	Male	A	49
12	Jr. High	Male	A	17

*B used to denote Rank III or below; A denotes Rank II or above.

by persons holding a Rank III (Rank I being highest) certificate. Six of the eight fall above the median on the list with one falling at the median. The holders of Rank II certificates have a greater spread but each of the six schools that has least favor was administered by a man with a Rank II certificate. There is no significant difference between the holders of Rank II and Rank III certificates with regard to rank position on the continuum.

The holders of Rank I certificates number only two. Both are listed below the median but the number is so small that conclusions based upon these would be unreliable.

Multiple Correlations

The coefficient of correlation of two variables is limited to a description of the relationship existing between two variables at a time without consideration of the effect of other variables which, no doubt, affect the relationship. In the multiple correlation problem, it is possible to consider the effects of several variables upon a dependent variable while eliminating the double consideration of those things which the several independent variables have in common. It is expected that the prediction of the dependent variable will be improved by increasing the number of predictors to more than one.

A major problem of the current study was to discover factors that when considered together would predict or account for the variance in the Composite Criterion. The criterion, or dependent variable, was determined by a summation of scores reflecting measures of school and community reactions or interpersonal relations.

The Jury Correspondence Scale. The first solution of the multiple correlation problem shown in Table 6 and Table 7 was obtained by using ten independent variables which were empirically chosen. The measures derived from the Principal Behavior Check List were the best single predictors for the Composite Criterion so one such measure was selected for each multiple correlation solution. For the first endeavor, the Jury Correspondence Scale was used. The zero-order correlation of this measure with the dependent variable was .701. The coefficient of determination, the square of the coefficient of correlation, for this measure is .490 which may be interpreted to mean that 49 per cent of the variance in the dependent variable is associated with the measure Jury Correspondence. It is in the interests of statistical prediction to find ways of increasing this coefficient of determination. This is accomplished by introducing other factors to the solution of the problem.

Upon using ten factors it was possible to improve the correlation to the extent of attaining a multiple correlation R of .876. The square of this is the proportion of variance accounted for by these variables. In other words, 76.8 per cent of the variance in the dependent variable can be accounted for by these ten factors leaving 23.2 per cent to be associated with factors unknown. Conceivably these could be such variables as age, intelligence, or any number of other things that could not be ascertained by this study.

When considering the effect of the other nine variables, the measure of Jury Correspondence accounts for approximately 41.0 per cent of the variance in the Composite Criterion; Factor A accounts for 12.7 per cent; the size of the school for 9.3 per cent; and, the F Scale

TABLE 6

INTERCORRELATIONS OF THE COMPOSITE CRITERION AND TEN SELECTED VARIABLES INCLUDING THE JURY CORRESPONDENCE SCALE

	Jury Correspondence	F Scale	Factor G	Factor A	Factor I	Factor N	Years in School	Years in Rank	Number of Teachers	Level of Income	Composite Criterion
Jury Correspondence .		-.263	-.008	-.146	-.034	-.037	.266	.171	-.213	.260	.701
F Scale	-.263		-.078	-.045	-.122	.001	-.019	.085	.180	.258	.222
Factor G	-.008	-.078		.609	.200	-.217	-.127	-.217	.575	-.006	-.145
Factor A	-.146	-.045	.609		.584	.109	-.159	-.212	.109	-.157	-.277
Factor N	-.037	.001	-.217	.109	.513		-.109	.019	-.170	.228	.070
Years in School . . .	.266	-.019	-.127	-.159	-.324	-.109		.584	.026	.239	.298
Years in Rank	.171	.085	-.217	-.212	-.143	.019	.584		-.056	.417	.392
Number of Teachers .	-.213	.180	.575	.109	-.059	-.170	.026	-.056		.153	-.205
Income Level	.260	.258	-.006	-.157	-.292	-.228	.239	.417	.153		.357
Composite	-.701	-.222	-.145	-.277	-.079	.070	.298	.392	-.205	.357	

TABLE 7

MULTIPLE CORRELATION SOLUTION CONSIDERING THE COMPOSITE CRITERION AND TEN SELECTED VARIABLES INCLUDING THE JURY CORRESPONDENCE SCALE

	Beta	r_o*	Beta x r_o
Jury Correspondence . .	.584 607	.701	.409 810
F Scale	.405 368	.222	.089 992
Factor G	.475 977	-.145	-.069 017
Factor A	-.457 421	-.277	.126 706
Factor I	.152 502	-.079	-.012 048
Factor N	.112 496	.070	.007 875
Years in School	.102 725	.298	.030 612
Years in Rank	.181 537	.392	.071 163
Number of Teachers . .	-.451 436	-.205	.092 544
Level of Income	.057 128	.357	.020 395
		R^2 =	.768 032
		R =	.876

*r_o denotes the zero-order correlation between the variable and the Composite Criterion.

for 9.0 per cent. Factors G and I have a negative effect upon the dependent variable and tend to reduce the total proportion of the variance for which accounting can be made. Factor N adds an inconsequential amount to the total. Doolittle's method was followed in solving for the multiple R.

Other multiple correlation solutions were determined by using other combinations of factors. The Jury Correspondence Scale and the Factor A measure were selected for one solution. The resultant correlation of .723 was greater than that obtained from the consideration of the Jury Correspondence alone with the Composite Criterion but much less than that which was obtained through the consideration of the ten factors. In another determination using the Jury Correspondence Scale as the basis upon which to build, five other variables were selected in an effort to predict more accurately the composite. The result of this calculation is shown in Table 8 and Table 9. These factors included the personality attributes described by the F Scale and Factor A, the personal factor of the number of years the principal had held the current teaching rank, and the community variables of Level of Income and the density of the community as reflected by the Number of Teachers in the school. In this determination 54.8 per cent of the variance in the dependent variable was accounted for. The multiple R was .741.

The G D Form of the PBCL. The G D Form was selected as the second measure of the PBCL to consider in determining the association of the several independent variables with the Composite Criterion, shown in Table 10 and Table 11. Variables were included that at least partially described the principal's behavior, the principal's personality, the age

TABLE 8

INTERCORRELATIONS OF THE COMPOSITE CRITERION AND SIX SELECTED VARIABLES INCLUDING THE JURY CORRESPONDENCE SCALE

	Jury Correspondence	F Scale	Factor A	Years in Rank	Number of Teachers	Level of Income	Composite Criterion
Jury Correspondence .		-.263	-.146	.171	-.213	.260	.701
F Scale	-.263		-.045	.085	.180	.258	.222
Factor A.	-.146	-.045		-.212	.109	-.157	-.277
Years in Rank	.171	.085	-.212		-.056	.417	.392
Number of Teachers. .	-.213	.180	.109	-.056		.153	-.205
Level of Income . . .	.260	.258	-.157	.417	.153		.357
Composite Criterion .	.701	.222	-.277	.392	-.205	.357	

TABLE 9

MULTIPLE CORRELATION SOLUTION CONSIDERING THE COMPOSITE CRITERION AND SIX SELECTED VARIABLES INCLUDING THE JURY CORRESPONDENCE SCALE

	Beta	r_o		Beta x r_o
Jury Correspondence .	.495 443	.701		.347 306
F Scale	-.138 281	.222		-.030 698
Factor A	-.075 915	-.277		.021 028
Years in Rank	.061 139	.392		.023 966
Number of Teachers .	-.181 183	-.205		.037 143
Level of Income . . .	.419 453	.357		.149 745
			R^2 =	.548 490
			R =	.741

TABLE 10

INTERCORRELATIONS OF THE COMPOSITE CRITERION AND EIGHT SELECTED VARIABLES INCLUDING THE G D FORM OF THE PBCL

	G D Form	F Scale	Factor G	Factor A	Years in Teaching	Years in Rank	Number of Teachers	Level of Income	Composite Criterion
G D Form .		.071	.040	.103	-.234	.155	-.159	.192	.715
F Scale .	.071		-.078	-.045	.111	.085	.180	.258	.222
Factor G .	.040	-.078		.609	.095	-.217	.575	-.006	-.145
Factor A .	.103	-.045	.609		.241	-.212	.109	-.157	-.277
Years in Teaching.	-.234	.111	.095	.241		-.150	.871	.069	-.245
Years in Rank. . .	.155	.085	-.217	-.212	-.150		-.056	.417	.392
Number of Teachers.	-.159	.180	.575	.109	.871	-.056		.153	-.205
Level of Income. .	.192	.258	-.006	-.157	.069	.417	.153		.357
Composite Criterion	.715	.222	-.145	-.277	-.245	.392	-.205	.357	

TABLE 11

MULTIPLE CORRELATION SOLUTION CONSIDERING THE COMPOSITE CRITERION AND EIGHT SELECTED VARIABLES INCLUDING THE G D FORM OF THE PBCL

	Beta	r_o	Beta x r_o
G D Form	.634 666	.715	.453 786
F Scale	.133 564	.222	.029 651
Factor G	-.092 220	-.145	.013 372
Factor A	.013 758	-.277	-.003 811
Years in Teaching . .	-.041 572	-.245	.010 185
Years Since Rank . . .	.202 542	.392	.079 396
Number of Teachers . .	-.018 498	-.205	.003 792
Level of Income . . .	.127 117	.357	.045 381
		R^2 =	.631 753
		R =	.795

of the principal as determined by Years of Experience, and the nature of the community reflected in Level of Income. The correlation was improved from .715 to .795 by the introduction of these other factors. The proportion of accountability of the criterion variance was 63.2 per cent. The G D Form, when taken in consideration with these other factors, accounted for approximately 45.4 per cent of the variance. This single factor, then, was a better predictor of the dependent variable than was the Jury Correspondence (best practices) Scale when considering the effects of other variables. In this solution, the influence of Factor A was reduced to a virtual zero. The number of years since attaining the current rank remained an important influence.

The Democratic Scale. In still another solution the number of variables was again limited to six. The same general pattern of variables was maintained. A third measure of behavior practices was utilized, the Democratic Scale, along with factors of personality, personal experience, and variables associated with the community. The resultant correlation coefficient was similar to that determined in the first solution described but was of greater importance in that a lesser number of variables were selected. The behavior measure, the Democratic Scale, accounted for approximately 47.2 per cent of the variance in the dependent variable. Of the determinations for the present study, this was the greatest single influence upon the dependent variable when consideration was given other variables at the same time. The reduction in the number of variables possibly accounts for a portion of this increase in influence. The personality and personal information factors are the most important variables in this determination. The variables derived from the nature of the community account for very little of the

TABLE 12

INTERCORRELATIONS OF THE COMPOSITE CRITERION AND SIX SELECTED VARIABLES INCLUDING THE F-K DEMOCRATIC SCALE OF THE PBCL

	Democratic Scale	F Scale	Factor A	Years in Rank	Number of Teachers	Level of Income	Composite Criterion
Democratic Scale . .		-.251	-.023	.068	.027	.228	.640
F Scale.	-.251		-.045	.085	.180	.258	.222
Factor A	-.023	-.045		-.212	.109	-.157	-.277
Years in Rank. . . .	.068	.085	-.212		-.056	.417	.392
Number of Teachers .	.027	.180	.109	-.056		.153	-.205
Level of Income. . .	.228	.258	-.157	.417	.153		.357
Composite Criterion.	.640	.222	-.277	.392	-.205	.357	

TABLE 13

MULTIPLE CORRELATION SOLUTION CONSIDERING THE COMPOSITE CRITERION AND SIX SELECTED VARIABLES INCLUDING THE F-K DEMOCRATIC SCALE OF THE PBCL

	Beta	r_o		Beta x r_o
F-K Democratic Scale. .	.737 111	.640		.471 751
F Scale	.429 756	.222		.095 406
Factor A	-.158 129	-.277		.043 802
Years in Rank	.263 319	.392		.103 221
Number of Teachers . .	-.267 893	-.205		.054 918
Level of Income	-.015 581	.357		-.005 562
			R^2 =	.763 536
			R =	.874

Composite Criterion.

The Situational Orientation to the PBCL. In another solution of the correlation problem, the effects of the Situational Orientation to the PBCL were observed by using that scale as a variable in the solution (Table 14 and Table 15). The attempt was made to include those variables which correlated with the Composite Criterion and that failed to correlate with the Situational Orientation Scale. Selected were three personality variables: the F Scale, Factor G, and Factor A; and, the Number of Teachers.

The result of this combination of variables revealed a multiple correlation R of .768 or an R^2 of .590, accounting for 59.0 per cent of the variance in the Composite Criterion. The accounting was not as satisfactory as some of the other combinations of variables used.

Summary. The most influential variables, when taken in combination with each other, were: the measure of the principal's behavior, the F Scale, Factor A, the number of years in the teaching rank held, and the level of income of the community. In order to facilitate comparisons between the solutions presented, three multiple correlation determinations were included using the measure of the PBCL as the only variant in the list of factors considered. Thus, in Table 9 is presented the result of combining the Jury Correspondence Scale with the five other selected independent variables; in Table 13 is the result of the Democratic Scale in combination with the same variables; and, in Table 15 is the result of the effect of the G D Form when considering the other five variables. The results are summarized in Table 18

TABLE 14

INTERCORRELATIONS OF THE COMPOSITE CRITERION AND FIVE SELECTED VARIABLES INCLUDING THE SITUATIONAL ORIENTATION TO THE PBCL

	Situational Scale	F Scale	Factor G	Factor A	Number of Teachers	Composite Criterion
Situational Scale . .		-.130	-.070	-.027	-.130	.612
F Scale	-.130		-.078	-.045	.180	.222
Factor G	-.012	-.078		.609	.575	-.145
Factor A	-.027	-.045	.609		.109	-.277
Number of Teachers .	-.130	.180	.575	.109		-.205
Composite Criterion .	.612	.222	-.145	-.277	-.205	

TABLE 15

MULTIPLE CORRELATION SOLUTION CONSIDERING THE COMPOSITE CRITERION AND FIVE SELECTED VARIABLES INCLUDING THE SITUATIONAL ORIENTATION TO THE PBCL

	Beta	r_o	Beta x r_o
Situational Scale	.608 464	.612	.372 380
F Scale	.370 908	.222	.082 342
Factor G	.340 970	-.145	-.049 440
Factor A	.414 081	-.277	.114 700
Number of Teachers	.343 585	-.205	.070 435
		R^2 =	.590 417
		R =	.768

TABLE 16

INTERCORRELATIONS OF THE COMPOSITE CRITERION AND SIX SELECTED VARIABLES INCLUDING THE G D FORM OF THE PRINCIPAL BEHAVIOR CHECK LIST

	G D Form PBCL	F Scale	Factor A	Years in Rank	Number of Teachers	Level of Income	Composite Criterion
G D Form, PBCL . . .		.071	.103	.155	-.159	.192	.715
F Scale	.071		-.045	.085	.180	.258	.222
Factor A	.103	-.045		-.212	.109	-.157	-.277
Years in Rank . . .	.155	.085	-.212		-.056	.417	.392
Number of Teachers . .	-.159	.180	.109	-.056		.153	-.205
Level of Income . .	.192	.258	-.157	.417	.153		.357
Composite Criterion.	.715	.222	-.277	.392	-.205	.357	

TABLE 17

MULTIPLE CORRELATION SOLUTION CONSIDERING THE COMPOSITE CRITERION AND SIX SELECTED VARIABLES INCLUDING THE G D FORM OF THE PBCL

	Beta	r_o	Beta x r_o
G D Form, PBCL	.674 121	.715	.481 997
F Scale	.141 097	.222	.031 324
Factor A	-.278 623	-.277	.077 179
Years in Rank	.173 546	.302	.068 030
Number of Teachers . . .	-.096	-.205	.019 859
Level of Income	.089 875	.357	.032 085
		$R^2 =$	.710 474
		$R =$	.843

TABLE 18

COMPARISON OF MULTIPLE CORRELATIONS BETWEEN COMPOSITE CRITERION AND SELECTED VARIABLES SHOWING THE EFFECT OF THE DIFFERENT FORMS OF THE PBCL AND FACTOR CONTRIBUTIONS TO THE VARIANCE OF THE COMPOSITE CRITERION

	G D Form	Democratic Scale	Jury Correspondence
Principal Behavior Check List	.482	.472	.347
F Scale	.031	.095	-.031
Factor A	.077	.044	.021
Years in Rank	.068	.103	.024
Number of Teachers . .	.020	.055	.037
Level of Income	.032	-.006	.150
R^2 =	.710	.764	.548
R =	.842	.874	.741

wherein are reflected the proportions each of the six independent variables contributed to the total variance in the Composite Criterion. The measure of situational behavior was not included in the summary because that scale apparently required another combination of factors to predict the variance in the Composite Criterion. The lower multiple R resulting from the combination of variables available in the current study reveal other factors must necessarily be included if the Situational Orientation is to be used in predicting the community's reactions and interpersonal relations as a result of the principal's actions.

It has been stated that it was not the purpose of the current study to attempt broad generalizations from the data presented herein. There are times that it is convenient, however, to refer to tables of significance to determine the level of significance of the calculations involved. This was done to substantiate the conclusions which will be drawn from the evidence presented. The level of significance used for this discussion will be .01. It was in the interests of the researcher in this study to reject the general hypothesis: there is no correlation (coefficient of correlation equals zero) between the composite score and the various combinations of variables herein reported.

In all, seven different combinations of variables were considered in an attempt to account for the dependent variable, the Composite Criterion. In each case the hypothesis was rejected as being untenable at the .01 level of confidence. It seems reasonable, therefore, to infer that a positive correlation exists between the Composite Criterion and the combined effects of:

I. A. Jury Correspondence Scale
   B. F Scale
   C. Factor G
   D. Factor A
   E. Factor I
   F. Factor N
   G. Number of Years in School
   H. Number of Years Since Attaining Current Rank
   I. Number of Teachers in the School
   J. Level of Income of the Community

II. A. Jury Correspondence Scale
   B. Factor A

III. A. Jury Correspondence Scale
   B. F Scale
   C. Factor A
   D. Number of Years Since Attaining Current Rank
   E. Level of Income of the Community

IV. A. G D Form of the Principal Behavior Check List
   B. F Scale
   C. Factor G
   D. Factor A
   E. Number of Years in Teaching
   F. Number of Years Since Attaining Current Rank
   G. Number of Teachers in the School
   H. Level of Income of the Community

V. A. G D Form of the Principal Behavior Check List
    B. F Scale
    C. Factor A
    D. Number of Years Since Attaining Current Rank
    E. Number of Teachers in the School
    F. Level of Income of the Community

VI. A. Democratic Scale
    B. F Scale
    C. Factor A
    D. Number of Years Since Attaining Current Rank
    E. Number of Teachers in the School
    F. Level of Income of the Community

VII. A. Situational Orientation to the PBCL
    B. F Scale
    C. Factor G
    D. Factor A
    E. Number of Teachers in the School.

The greater the number of variables considered in the multiple correlation the less important is the obtained result. Snedecor suggests a method for shrinking this inflated value to a more realistic situation.[1] The multiple R is the possible correlation between a dependent variable and two or more independent variables when the effects of the intercor- are considered. It is not necessarily the actual correlation that exists.

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[1] George W. Snedecor, Statistical Methods, (Ames, Iowa: The Iowa State College Press, 1946), p. 348.

This corrected value is determined as follows:

$$_{c}R^2 = 1 - (1 - R^2)\,\frac{(N - 1)}{(N - m)}$$

Where: $_{c}R^2$ is the square of the corrected multiple correlation

R^2 is the square of the multiple correlation

N is the number of cases in the sample

m is the number of variables.

The correlated multiple correlations are shown in Table 19. The level of confidence for the solution in number one is above the .05 level. Solution number four drops below the .05 level while each of the others is beyond the .01 level of confidence with the exception of the multiple R determined for the six factors including the Situational Orientation Scale. In this case, the level of confidence is at .05. The .01 level implies that a correlation of this amount would be expected to occur one time in a hundred by chance factors alone.

The factors that appear to contribute most to the prediction of the parents', pupils', and teachers' reactions to the principal's behavior will be discussed in the next chapter.

TABLE 19

CORRECTED MULTIPLE R

	Number of Variables	Derived R	Corrected R	Level of Confidence
1.	10	.876	.80	.05
2.	2	.723	.71	.01
3.	6	.741	.66	.05
4.	8	.795	.69	>.05
5.	6	.874	.84	.01
6.	5	.755	.70	.01
7.	6	.843	.80	.01

CHAPTER V

CONCLUSIONS

In the current study there are six factors that are most closely related to the reactions to the principal's behavior or that affect the interpersonal relations of the people with whom the principal is associated. These factors have been entitled: (1) the measures of the Principal Behavior Check List, (2) F Scale, (3) Factor A, (4) Years in Rank, (5) Number of Teachers, and (6) Level of Income. More complete descriptions of these factors are necessary for clarification.

Principal Behavior Check List

The Principal Behavior Check List is an instrument originally developed by Alpren and his associates in the Florida Leadership Project. Van Aken administered the instrument to the principals to whom reference is made in this study. It was later refined by Farrar.

The Principal Behavior Check List, or PBCL, contained 86 problem situations for which the respondent was presented a choice of solutions ranging from five to fifteen. The choice to be made was that which was most in keeping with the course the principal usually followed in meeting the situation as it arose within the school. The principal was asked to indicate first, second, or other choices as were appropriate.

Scales for scoring the PBCL were constructed by the researchers. Criteria were established to serve as guides for determining whether the individual response to the test item was "democratic" or "authoritarian" in nature. Some of the principal's responses were those replies considered democratic and some were authoritarian actions. The sum of the democratic responses was the basis for a score on the F-K Democratic Scale. Similarly, criteria were established for "best practices." The best practices were those responses upon which a jury of authorities agreed to be most desirable practices. The resulting scale was entitled Jury Correspondence Scale.

The third scale was a refinement constructed by Farrar on the basis of greatest differences in discriminating between democratic and authoritarian behavior. The scale is referred to as the G D Form.

Typical items appearing in the Principal Behavior Check List are:

> What do you do when you observe a student infraction of school rules and no teacher is present?
>
> ( ) ignore it completely
>
> ( ) ignore it and refer problem to guidance counselor of teacher
>
> ( ) ignore it and send for student later
>
> ( ) stop it immediately by questioning or cautioning student
>
> ( ) stop it immediately by disciplining student
>
> ( ) stop it immediately by conference with student in another area or office
>
> ( ) stop it immediately by referring student to guidance counselor or homeroom teacher and investigate later

Where do you sit or stand in the faculty meeting?

( ) sit apart from the group, but not in front, in a row arrangement of seating

( ) stand at the sides or rear of the room in a row arrangement of seating

( ) sit anywhere in the front section among teachers, in a row arrangement seating

( ) stand facing the faculty in a row arrangement of seating

( ) sit facing the faculty in a row arrangement of seating

( ) sit in the rear sections of the room among teachers, in a row arrangement of seating

( ) sit anywhere in a circle or square arrangement of seating

( ) sit or stand at the front of a semi-circle arrangement of seating

Where do you draw the line on personal-social relationships with the faculty in non-professional socializing after school hours?

( ) socialize on basis of spreading myself equally among all

( ) not too familiar; not wise to get too close

( ) socialize with all at least once a year; socialize frequently with those who share my interests

( ) rarely or never socialize; responsibilities and other activities limit interactions with teachers

( ) socialize with a few who share my interests.[1]

F Scale

Adorno and his associates identified many persons who exhibited fascist potential; that is to say, persons who were not necessarily adherents to a fascist organization in any way but persons who would have a great tendency to join a movement advocating strict governmental control of private enterprise should the occasion arise. The fascist potential was studied more carefully than the antifascist because the former is more likely to be like many others holding the same potential. The antifascists are too diverse in personality attributes to be so grouped. The F Scale is the result of effort expended "to construct a scale that would measure prejudice without appearing to have this aim and without mentioning the name of any minority group."[1] The authors state the findings of the scale are limited to the psychological aspects of the prejudice problem and that potential antidemocratic behavior is revealed rather than overt manifestations of one's feelings.

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[1] Florida Leadership Project, "Principal Behavior Check List," University of Florida (mimeographed), p. 6 ff.

The F Scale test was presented the principal's under study by Van Aken as a "Public Opinion Questionnaire." Responses were made by indicating varying degrees of agreement or disagreement with a plus or minus numeral one, two, or three. Typical items are:

> No weakness or difficulty can hold us back if we have enough will power.
>
> Obedience and respect for authority are the most important virtues children should learn.
>
> Sex crimes, such as rape and attacks on children, deserve more than mere imprisonment; such criminals ought to be publicly whipped, or worse.
>
> People can be divided into two distinct classes; the weak and the strong.[2]

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[1] T. W. Adorno, et al, The Authoritarian Personality, (New York: Harper and Brothers, 1950), p. 279.

[2] *Ibid.*, p. 248 ff.

The Guilford-Martin Inventory of Factors GAMIN

The Guilford-Martin Inventory of Factors GAMIN is an inventory of personality factors reported as scores on five different factors. The instrument was administered the principals under study by Van Aken in an attempt to reveal a relationship between those factors of personality and behavior as measured by the scales of the Principal Behavior Check List. A high score on the specific factor is associated with the following tendency:

> Factor G, General pressure for overt activity;
>
> Factor A, Ascendancy in social situations as opposed to submissiveness; leadership qualities;
>
> Factor M, Masculinity of attitudes and interests as opposed to femininity;
>
> Factor I, Lack of inferiority feelings; self-confidence; and,
>
> Factor N, Lack of nervous tenseness and irritability.[1]

For the purposes of this study, the Factor M was ignored in that the group studied was quite evenly divided between male and female principals and the results of the measure revealed a similar dichotomy which added nothing to the analysis. The interfactor correlations reported by Martin were quite similar to the correlations used in the current study. Moderate positive correlations exist between Factor G and Factor A, and Factor N and Factor I.

To complete the questionnaire inventory of Factors GAMIN, the principal answered each of a series of questions in the affirmative or negative as was appropriate in his opinion. Typical questions were:

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[1] Howard G. Martin, "The Construction of the Guilford-Martin Inventory of Factors G-A-M-I-N," Journal of Applied Psychology, XXIX (August, 1945), pp. 298-300.

For Factor G

> Are you inclined to be quick in your actions?
>
> Can you turn out a large amount of work in a short time?

For Factor A

> Do you usually speak up in a meeting to oppose someone who you feel sure is wrong?
>
> Have you ever, on your own initiative, organized a club or group of any kind?

For Factor I

> Do you feel that the average person has made a better adjustment to life than you have?
>
> Do you suffer keenly from feelings of inferiority?

For Factor N

> Do you have nervous habits such as chewing your pencil or biting your finger nails?
>
> Do you feel compelled to change your bodily posture frequently while sitting?[1]

The single factor, A, was found to be a contributor to the factors identified in this study.

Years in Rank

The measure, Years in Rank, was determined by the number of years since the principal had received the rank of certificate he held at the time of the project study. The information was obtained from a personal information questionnaire included with other instruments. It is partially affected by the age of the person but the correlation of the measure with a more direct age estimate is only questionable.

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[1] *Ibid.*

For example, the correlation with Years in County is .328, with Years in the School it is .548, with Years in Teaching it is -.150.

Jenkins and Blackman included a variable that was based upon recency of graduate study which may have properties that are similar to the properties or elements contained in the measure used in the current study. In the report Jenkins and Blackman, "this variable was used as a measure of professional interest and concern with professional growth."[1]

Level of Income

The Level of Income is the average level of family income derived from the Parent Questionnaire responses reported by Henderson.[2] The question permitted a wide latitude of replies in that three choices were granted to indicate an income of "less than $2000" to "more than $5000."[3]

Number of Teachers

The Number of Teachers is the number of teachers listed in the Hillsborough County Personnel Directory for each school. The number is a reflection of the size of the school in that a rather definite ratio of teachers to pupils is maintained throughout the state. The measure is also a function of the density of population of the community.

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[1] Jenkins and Blackman, op. cit., p. 19.

[2] Henderson, op. cit.

[3] Paul P. Williams, Parent Questionnaire, (Gainesville: College of Education, University of Florida, 1953), p. 1.

Conclusions

Two hypotheses were cited as guides to the execution of this study.

Hypothesis 1: There is a positive relationship between the measures of a principal's personality and behavior in serving as a leader of a school and the measure of favorable reactions to the community.

This hypothesis is accepted as being tenable in the light of the evidence presented. The correlation between the composite community's reaction to the principal and the school and the combined effects of the principal's personality factors, behavior pattern, and certain other measures associated with the principal, is significantly positive at the .01 level of confidence. The correlation between the measures of the principal's pattern of behavior and the composite of community reaction is also positive and significant at the .01 level of confidence.

Hypothesis 2: The effectiveness of the principal's leadership is predictable, in part, from the measures of the principal's personality, democratic tendencies, and the nature of the school community.

This hypothesis is accepted as tenable in the light of the evidence presented. The Principal Behavior Check List scored in accordance with the Democratic Scale, when combined with the measures of the F Scale, Factor A, the Years in Rank, the Number of Teachers, and the Level of Income for the community account for 76.4 per cent of variance in the composite score of community reactions. Shrinking this result to a more realistic statistic does not alter the acceptance of the hypothesis.

The most satisfactory determination of the multiple correlation coefficient between the dependent variable, Composite Criterion, and the combination of variables assumed to be associated with the principal was that determination which included the Democratic Scale of the PBCL and five other factors. In this solution the major portion of the variance in the dependent variable is associated with the Democratic Scale scoring of the Principal Behavior Check List. This one measure accounts for approximately 47.2 per cent of the variance whereas the next most important variables are the Years in Rank and the F Scale which contribute approximately ten per cent each. The other variables worthy of note are Factor A and the size of the school; each contributes five per cent or less to the variance.

From the titles given the respective variables, Democratic Scale and the F Scale of Antidemocratic Tendencies, it would apparently seem that the two variables represent conflicting measures. The zero-order correlations between the two is -.251 which substantiates the above statement even though the negative relationship is slight. The two measures support each other, however, in describing the variance in the dependent variable. Both variables exhibit positive correlations with the dependent variable. Within those elements the two elements evidently have in common there are elements that are common to or associated with the desirable community reactions or interpersonal relations that are sustained by the activities of the principal. The teachers, pupils, and parents of the community appreciate some prejudicial attitudes in the person selected to administer the school in addition to practices and activities judged to be democratic or authoritarian in nature.

The variable Years in Rank is a complex factor quite evidently associated with the age of the person; however, the -.150 correlation with the number of years the principal has been teaching belies a direct association. This slight negative correlation could be a very slight or zero correlation. The factor is significantly correlated with the number of years the principal has been employed in the one school and the relationship with the level of income for the community approaches significance. It seems there is a tendency for a person appointed to a school located in a community with a relatively high level of income to remain in the position without feeling a need to continue one's formal education. That is, once the appointment is made there is possibly less reason to advance professionally.

The number of teachers in the school is negatively correlated with the composite score used as the dependent variable. Within limits, not defined here, the smaller schools will tend to promote a better human relationship between the principal and the community. The contributions of the size of the school when taken into consideration with the other factors listed will account for about five per cent of the variance in the Composite Criterion.

The negative correlation between Factor A and the Composite Criterion seems to indicate the community does not necessarily prefer the aggressive person exhibiting "leadership qualities" so in the contribution of the Factor A to the total variance the person scoring low on the Factor A would meet with greater approval.

The Level of Income of the community has a zero factor loading in this determination and thus does not contribute measurably to the variance. It is quite possible that the contributions of the factor is manifested in another factor that holds certain elements of that factor in common with the factor Level of Income. Elimination of that factor, whichever it may be, would possibly increase the effect of the Level of Income factor. As an example, Level of Income factor is appreciably related to Years in Rank. It is also possible that the factor serves as a suppressor to negative elements found in other factors thus reducing a negative tendency in that factor.

CHAPTER VI

SUMMARY AND RECOMMENDATIONS

Purpose of the Study. A purpose in this problem was to relate the several aspects of the Florida-Kellogg Leadership Project to each other and to produce a statistical summary of the several dissertations presented.

It was an intent in this study to prescribe a procedure for appraising the leadership effectiveness of each principal in a group under study. The criterion of leadership effectiveness was accepted to be reflected in the measures of the interpersonal relations of the pupils, teachers, and the parents and their attitudes toward the school. The combined scores when properly weighted outlined a continuum of community acceptance of the principal.

It was also an intent in this study to determine which of several measures could be used most effectively in predicting the community's reaction to the school principal.

Selection of Data. The data selected were originally reported in studies made in conjunction with the Florida-Kellogg Leadership Project of the University of Florida. These data were extracted from the reports of a series of studies of the school principals' activities and personality in Hillsborough County, Florida. Fourteen measures of the teacher, pupil, and parent attitude and interpersonal relations were utilized jointly with fifteen instruments that included the measures of the principal's pattern of behavior, personality factors, and other measures concerning the principal and the community.

The data are limited to the information available for twenty-five schools that were common to seven doctoral studies preceding the current study. No new data were presented as evidence to support the conclusions stated for this study.

Treatment of the Data. Correlations were determined for all possible combinations of measures taken two at a time. From the fourteen measures of teacher, pupil, and parental attitude and interpersonal relations a Composite Criterion was developed which was the dependent variable in a series of multiple correlation determinations. The multiple correlation solutions considered the relationship between the Composite Criterion and a combination of variables derived from objective measures of the principal and the community.

Zero order Correlations. High intercorrelations were found to exist among three of the four measures of the Principal Behavior Check List. The correlation of the Situational Orientation of the Principal Behavior Check List and the G D Form of the same Check List was not quite as high as the intercorrelations of the Democratic Scale, the Jury Correspondence Scale, and the G D Form. Of the three possible correlations with any one measure, the Situational Orientation measure was the lowest in each case. The correlation of .700 between this measure and the G D Form approaches a high correlation. The correlation of the G D Form with the Democratic Scale is .957

which may be interpreted as a very high correlation; the two measures have very much in common.

A substantial relationship exists between each measure of the Principal Behavior Check List and the Composite Criterion. A high score on each of the four measures of the Check List is associated with a high score on the Composite Criterion. Democratic actions and "best practices" activities upon the part of the principal promote a favorable response from the school personnel and the community in attitudes toward the school and toward each other.

Democratic tendencies manifested in the activities of the principal correlate directly with: (1) a measure of the teachers' interaction with the community, (2) a measure of the nature and frequency of the teachers' professional activities, and (3) a measure of the pupils' attitudes toward the principal. There is also a significantly high correlation of the principal's high score on the measure of best practices with the teacher's attitude toward the school, the community, and each other. The measures of the pupils' attitude toward the teachers and toward each other correlate to a high degree with the principal's score on the best practices scale.

There is a significant relationship between the shorter form of the Check List, as refined by Farrar, and the measures of the teachers' interaction with the community, the pupil's attitude toward the principal, and the parents' interaction with the school.

The principal who considers situational factors in making decisions is associated with teachers exhibiting desirable attitudes toward the school and each other and is associated with pupils who have a favorable attitude toward each other.

Development of the Composite Criterion. A composite measure was developed after a method proposed by Horst. The fourteen measures of teacher, pupil, and parent attitudes and interpersonal relations were combined in a way to exhibit a maximum dispersion of the scores. Through the use of this method, cognizance is given the intercorrelations of the measures thus providing for the relative contributions of each measure to the composite. This criterion was then used as the dependent variable in the multiple correlation determinations that are a major portion of the current study.

A second use of the Composite Criterion is the basis for an index of the acceptance of the principal by the parents, teachers, and pupils as reflected by the attitudes and interpersonal relations of these same persons. The index is limited to the principals included in this study,but the method for determining the index has universal application.

Multiple Correlation. Seven determinations of the multiple correlation coefficient are reported each of which is based upon a different combination of independent variables with one composite score or dependent variable. The most promising predictor of the Composite Criterion or community reaction was the combination of the Democratic Scale as the measure of the principal's behavior; the F Scale and Factor A as the personality attributes; the number of years the principal had held the teaching rank; the size of the school; and, the level of family income for the community. This combination of variables produced a multiple correlation coefficient of .874 or accounted for 76.4 per cent of the variance of the dependent variable used as the criterion measure. The same combination of variables with the G D Form measure as the score on the Principal Behavior Check List substituted for the Democratic Scale produced a multiple correlation coefficient of .842 thus accounting for 71.0 per cent of the variance in the criterion measure. Both of these values are significant beyond the .01 level of confidence. The values are also significant at the .01 level of confidence after shrinking the coefficient to a more realistic value.

Sources of Error

The coefficient of correlation is subject to a number of errors which must be recognized in interpreting the results of the study. A serious possibility of error is encountered in a determination based upon a small sample size. There is more chance that the distribution of the sample does not approach normality and extreme scores tend to increase the coefficient of correlation obtained. A second error is that caused by cumulative errors in calculation. The multiple correlation coefficient is always positive thus affording no opportunity for cancellation of rounding errors normally taking place in computations involving positive and negative numbers. These two classes of errors are compensated in the process of "shrinking" which was applied in this study. Care is exercised also in avoiding the computational errors by retaining a large number of significant figures in the calculation process. A rule-of-thumb is to retain the number of significant figures equal to the number of variables used in the determination. There is an obvious limitation to this suggestion when dealing with more than six to eight variables. In general this rule was followed in the current study; the exception was in the case of the determination including ten variables.

An additional error is termed "spurious" correlations. The most prevalent source of this error is in the computation of correlations from averaged data. The correlation coefficient may be an inflated value which could not be achieved in correlations between individuals. The computation of the correlations used in developing the Composite Criterion was based upon averaged data. These values were not corrected. However, the possibility of systematic error in determining the Composite Criterion is apparently remote. The criterion measure was based upon relative measures rather than absolute values and errors introduced would probably have no serious effect upon the final result. The multiple correlation coefficients reported were based upon individual scores and, therefore, would not be subject to this error.

Another source of error that could cause a spurious correlation is that introduced by a "third factor" error. This is an error introduced by a factor such as age of the subjects. It is a factor which is inherent in the data for which no accounting is made because of ignorance of its existence. Caution was exercised in the selection of factors in this study to avoid those factors which most obviously introduce a common factor. It was assumed the individuals were relatively homogeneous in that all were selected as principals of a school which would imply a certain minimum level of intelligence, a certain minimum age, and some other characteristics recognized to be important for the selection of the school administrator.

There is reason to believe normal precautions were exercised in avoiding or eliminating the effects of the errors discussed here.

Recommendations for Further Research

It is recommended that the techniques herein proposed be utilized in a more extensive study to determine the universality of the factors revealed to be pertinent in predicting the criterion. Six factors were found to be important in predicting leadership effectivensss. Are these variables the most significant factors obtainable in predicting leadership effectiveness?

Evidence is needed to assist in discerning between the relative effectiveness of the male and female principal. Is the relationship between the school and community a result of the level of the school or one of sex of the administrator?

The Composite Criterion as used in the current study was developed from the results of fourteen measures of interpersonal relations and latitude. There was latitude for error in the assumptions and criteria used in the selection of these measures. Additional research is necessary to refine the continuum of school satisfaction wherein the major emphasis of the study would be placed upon developing a criterion for appraising the school program. This need is apart from the need for evaluating the administrative effects of the principal and pupil achievement. It is hypothesized that the measure of school satisfaction is a function of pupil achievement.

Implications

An analysis of the data reported reveal clues which may serve as guides to the principals who are concerned with a continuing program for educational improvement. The following seem most appropriate:

1. What the principal does in the school is important. When considering the combined effects of several variables, the pattern of behavior of the school principal accounts for approximately 37 to 48 per cent of the variance in the measure of leadership effectiveness.

2. Community interaction with the school is important if the community is to accept and support the educational program. The interrelationship of parent attitude and interaction, teacher human relations, pupil interpersonal relations, and the principal's pattern of behavior emphasize the need for participation of school personnel and other community residents to continue an educational program which meets the interests of the community.

3. Curriculum changes in which the community is interested and changes other than of a routine nature should be made after parents have had an opportunity to plan with school personnel. The negative relationship of the number of program changes with parent attitude and frequency of interaction substantiates this statement. Where program changes are most frequent the interaction of parents with the school is least frequent and parental attitude is least favorable.

APPENDIXES

APPENDIX A

TABLE 20

FINAL DATA

School Number	Teacher Question #1	Teacher Question #2	Teacher Activities	Teacher Human Relations	Curriculum Readiness	Program Development	T-P Corres. PBCL
01	.040	.542	27.0	30.5	30.5	18	68
02	.292	.564	34.7	39.7	27.3	18	57
04	.195	.455	22.6	23.6	29.4	52	62
08	.275	.561	30.7	33.5	29.3	7	50
09	.179	.468	33.1	29.9	28.5	18	65
11	.248	.526	35.4	38.8	31.5	31	60
14	.234	.587	32.4	30.1	27.3	43	58
16	.225	.582	32.0	30.8	29.4	3	45
17	.022	.352	30.7	27.6	28.3	40	64
18	.383	.557	36.9	34.1	30.0	31	65
21	.250	.475	37.4	32.7	24.3	18	61
22	.109	.521	22.1	25.0	29.4	58	52
24	.343	.523	28.1	29.4	27.6	31	58
29	.384	.523	36.9	42.5	22.5	18	54
30	.155	.438	37.3	37.0	28.3	31	59
32	.255	.506	26.8	25.9	27.8	46	50
33	.365	.574	38.5	36.6	27.0	37	66
40	.269	.507	24.3	26.1	28.1	54	59
41	.302	.467	22.6	24.9	29.0	56	58
43	.433	.607	36.4	37.6	28.9	18	62
45	.266	.560	33.3	31.7	28.3	7	70
49	.133	.484	28.2	19.7	25.3	43	54
53	.277	.567	31.9	29.4	25.5	18	57
57	.386	.476	29.2	31.6	26.4	50	53
60	.165	.466	27.3	26.6	26.8	3	54

TABLE 21

FINAL DATA

School Number	Parent Attitude	Parent Interaction
01	53.6	23.2
02	57.3	24.8
04	52.0	20.9
08	69.5	24.5
09	61.3	17.9
11	62.7	23.6
14	62.1	22.7
16	67.2	22.8
17	48.0	18.8
18	66.0	26.7
21	59.8	21.8
22	56.2	18.5
24	61.7	26.0
29	59.9	23.0
30	50.3	21.0
32	55.7	17.5
33	68.5	23.9
40	32.8	17.4
41	43.9	17.8
43	70.7	27.3
45	67.3	26.7
49	54.7	22.1
53	63.2	21.2
57	69.2	21.9
60	71.2	24.5

TABLE 22

FINAL DATA

School Number	Pupil Att. Self	Pupil Att. Peers	Pupil Att. Teachers	Pupil Att. Principals	Pupil Att. Whole School	Composite Reactions
01	30.5	21.7	46.3	25.3	11.7	477
02	33.6	23.3	45.1	26.4	11.9	519
04	31.7	23.6	47.4	26.3	12.9	478
08	30.4	22.4	46.3	25.5	11.9	496
09	30.1	22.5	46.0	23.0	11.9	472
11	30.1	22.8	52.9	27.2	12.8	517
14	30.5	22.0	46.6	25.7	11.8	491
16	32.0	21.4	46.0	25.8	12.0	491
17	32.2	22.5	45.8	23.4	11.6	452
18	33.3	22.9	49.6	23.9	11.7	523
21	30.4	22.5	43.2	23.7	12.1	483
22	32.9	23.3	45.7	21.7	12.3	459
24	31.3	22.5	48.0	25.9	12.5	501
29	33.9	24.3	49.3	28.7	12.6	536
30	30.0	21.5	48.3	23.6	12.1	474
32	32.7	21.9	45.9	25.6	11.6	469
33	31.0	23.2	43.0	25.7	12.7	518
40	32.5	22.6	52.1	24.7	12.2	470
41	33.8	21.6	46.1	26.7	12.2	468
43	34.5	24.1	51.2	27.0	12.9	553
45	32.8	23.9	50.9	27.1	12.3	531
49	30.3	21.5	48.5	24.2	12.2	456
53	29.6	22.2	47.7	24.1	12.3	486
57	34.4	23.8	46.6	27.5	11.8	511
60	31.0	22.0	41.5	23.5	11.8	570

TABLE 23

FINAL DATA

School Number	G D Form	Jury Correspondence	Democratic Scale	Situational Scale
01	3.37	69	44	58
02	3.10	56	31	50
04	3.48	64	39	57
08	3.27	65	37	55
09	2.97	58	34	48
11	3.85	75	48	59
14	4.08	76	47	56
16	3.67	60	52	54
17	2.97	53	33	48
18	3.84	79	48	65
21	2.64	51	26	50
22	2.95	55	37	55
24	3.37	67	38	62
29	3.79	69	48	59
30	2.97	46	30	44
32	2.90	49	32	42
33	3.87	87	51	56
40	3.25	76	45	60
41	2.97	55	35	55
43	3.79	82	51	62
45	3.70	76	45	57
49	2.49	42	24	41
53	3.36	60	34	52
57	3.52	64	42	55
60	3.28	50	32	43

TABLE 24

FINAL DATA

School Number	F Scale	Factor $\underline{G}$	Factor $\underline{A}$	Factor $\underline{I}$	Factor $\underline{N}$	Years in County	Years in School	Years in Teaching	Years in Rank
01	-56	7	22	32	31	8	7	18	5
02	36	1	18	37	36	29	15	25	8
04	9	10	14	26	15	25	23	42	8
08	- 1	13	18	35	38	19	10	20	13
09	- 6	6	15	38	39	8	8	11	14
11	- 8	6	20	42	37	10	5	23	8
14	2	4	21	45	38	22	8	15	6
16	- 5	14	26	41	42	27	27	19	7
17	- 8	8	23	37	28	24	6	28	8
18	1	5	17	36	29	28	21	25	19
21	12	7	22	38	36	22	1	14	8
22	-22	14	28	41	29	12	4	33	7
24	- 3	9	19	32	34	23	23	14	13
29	15	17	21	37	28	5	5	23	8
30	- 1	11	16	37	31	26	3	13	7
32	-17	11	22	42	38	29	4	38	6
33	29	12	16	39	35	5	5	21	2
40	-57	14	28	43	38	8	8	23	5
41	53	14	32	39	38	4	4	37	5
43	- 6	9	21	38	31	25	21	24	19
45	22	11	25	43	38	10	1	27	8
49	0	4	17	41	39	41	4	39	8
53	-22	14	30	46	37	25	22	29	18
57	14	6	14	32	42	15	15	10	14
60	10	23	30	41	27	8	3	18	6

TABLE 25

FINAL DATA

School Number	Number of Teachers	Level of Income
01	18	2.29
02	25	2.47
04	42	2.55
08	20	2.50
09	11	2.43
11	23	2.22
14	15	2.29
16	19	2.40
17	29	2.53
18	25	3.34
21	14	2.52
22	35	2.39
24	14	2.45
29	23	2.68
30	13	2.49
32	40	2.58
33	21	2.54
40	23	2.54
41	38	2.73
43	24	2.74
45	27	2.47
49	40	2.29
53	29	2.31
57	33	2.70
60	18	2.46

APPENDIX B

CALCULATION OF THE PREDICTED COMPOSITE CRITERION SCORES FROM THE REGRESSION EQUATION

The calculation of the multiple correlation coefficient is of value in stating the extent of relationship among two or more independent variables and a dependent variable. The actual prediction of the dependent variable from scores on the independent variable is accomplished through the application of the regression equation. As an illustration for this calculation, the data for the determination of the multiple correlation coefficient derived from the combination of the following variables was selected: Composite Criterion, Democratic Scale, F Scale, Factor A, Years in Rank, Number of Teachers, and Level of Income.

The regression equation in standard score form becomes:

$$z'_1 = \underline{B}_2 z_2 + \underline{B}_3 z_3 + \underline{B}_4 z_4 + \underline{B}_5 z_5 + \underline{B}_6 z_6 + \underline{B}_7 z_7$$

where: z'_1 is the predicted standard score

$\underline{B}$ is the respective Beta coefficient as determined in the multiple correlation calculations

z is the respective standard score for each of the six independent variables

Scores for School 01 were used for illustrative purposes. These values are shown in Table 26.

The standard deviation of the Composite Criterion is 31.05. The product of the predicted standard score (-.577) and the standard

TABLE 26

CALCULATION OF PREDICTED COMPOSITE CRITERION SCORE

	Raw Score	Deviation from Mean	Standard Score	Beta	Beta Times Std. Score
Democratic Scale	44	4.68	.582	.737	.429
F Scale	-56	-55.64	-2.299	.430	-.989
Factor A	22	1.40	.261	-.158	-.041
Years in Rank	5	-4.25	-.896	.263	.236
No. of Teachers	18	-6.76	-.730	-.268	-.196
Level of Income	2.29	- .23	-1.018	-.016	-.016
Total Predicted Composite Standard Score					-.577

496 = mean of composite scores
31.05 = standard deviation of composite scores

The deviation of the predicted composite score from the mean is:
(-.577) (31.05) = -17.9

Predicted composite score is: 496.0 - 17.9 = 478.1

deviation is -17.9 which is the predicted deviation from the mean for School 01 on the Composite Criterion. The sum of the deviation and the mean of the Composite Criterion scores (-17.9 plus 496) equals 478.1. This represents the predicted Composite Criterion score derived from the regression equation. The actual score as found in Table 2 is 477. In a similar manner, a score on the Composite Criterion could be predicted from a knowledge of the scores obtained from each of the six independent variables indicated.

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BIOGRAPHICAL SKETCH

Donald R. Thomsen was born in Dwight, Illinois, January 14, 1920. He attended the public schools of that city and was graduated from the high school in 1937. He entered Illinois State Normal University in 1939 and received the degree of Bachelor of Education in 1943.

After graduation, Mr. Thomsen was employed as an assistant control chemist for a chemical manufacturer in the state of Virginia. In 1944, he entered military service as an enlisted man in the U. S. Navy. He attended Navy electronics schools and was later assigned duty aboard ship in the Pacific theatre of operations. He was given an honorable discharge in February, 1946.

From 1946 until 1948, Mr. Thomsen was employed as a teacher of mathematics and science in public schools in Illinois. In 1948 he returned to Illinois State Normal University to complete the requirements for the degree, Master of Science in Education. He later was employed as a teacher in Illinois and in Key West, Florida.

In 1950, Mr. Thomsen was employed to teach science in the U. S. Army Dependents' Schools in Linz, Austria. From April until December, 1951, he served as the high school principal. In December, 1951, he was assigned as the Director of Education for the Dependents' Schools Austria, the position he held until returning to Florida in 1954 to enter the University of Florida.

Mr. Thomsen married Constance Myers of Chicago, Illinois, in November 1944. The Thomsens are the parents of two boys and a girl.

This dissertation was prepared under the direction of the chairman of the candidate's supervisory committee and has been approved by all members of the committee. It was submitted to the Dean of the College of Education and to the Graduate Council and was approved as partial fulfillment of the requirements for the degree of Doctor of Education.

August, 1956.

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